MESSOA

DVR100 Series
Digital Video Recorder

User's Manual

F34-100070-000A A1

Caution and Preventive Tips

- Handle with care, do not drop the unit
- Mount the unit in an equipment rack or place it on a solid, stable surface
- Indoor use only. Do not place the unit in a humid, dusty, oily, or smoky site
- Do not place it in an area with poor ventilation or in an area close to fire or other sources of heat. Doing so may damage the unit as well as cause fire or an electric shock
- When cleaning is necessary, shut down the system and unplug the unit from the outlet before uncovering the top cover. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning
- Always shut down the system prior connecting or disconnecting accessories, with the exception of USB devices

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol intends to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This symbol intends to alert the user to the presence of unprotected "Dangerous Voltage" within the product's enclosure that may be strong enough to cause a risk of electric shock.

Important Information

Before proceeding, please read and observe all instructions and warnings in this manual. Retain this manual with the original bill of sale for future reference and, if necessary, warranty service. When unpacking your unit, check for missing or damaged items. If any item is missing, or if damage is evident, DO NOT INSTALL OR OPERATE THIS PRODUCT. Contact your dealer for assistance.

Rack Mounting

Consult with the supplier or manufacturer of your equipment rack for the proper hardware and procedure of mounting this product in a safe fashion. Avoid uneven loading or mechanical instability when rack-mounting units. Make sure that units are installed to get enough airflow for safe operation. The maximum temperature for rack-mounted units is 40 °C. Check product label for power supply requirements to assure that no overloading of supply circuits or over current protection occurs. Mains grounding must be reliable and uncompromised by any connections.

Table of Content

1. Overview 11
2. System Setup 12
2.1 Position the DVR 12
2.2 Connect Devices to the DVR 12
2.3 Rear Panel Connections 13
3. General System Setup 15
3.1 Front Panel Introduction 15
3.1.1 LED Definition 15
3.1.2 Function Keys 16
3.2 Enter OSD Setup Menu 18
3.2.1 User Management 18
3.3 Power Up / Shutdown the DVR 19
3.3.1 HDD Auto Scan 21
3.4 System Date / Time Setting 22
3.4.1 Set Date / Time 22
3.4.2 Daylight Saving Time 23
3.4.3 Network Time Protocol Setup 24
3.5 Record Schedule / Quality Setting 25
3.5.1 Record Mode Setup 25
3.5.2 Schedule Setup 26
3.5.3 Preset Record Configuration 26
3.5.4 Per Camera Configuration 27
3.5.5 Record Event Video Only 27
3.5.6 ezRecord Setup 28
3.5.7 Data Lifetime Setup 29
3.5.8 Circular Recording 30
3.5.9 Audio Recording 30
3.5.10 Purge Data 30
3.6 Event Setting 31
3.6.1 Internal Buzzer 31
3.6.2 Event Icon 31
3.6.3 Email Notice 32
3.6.4 Email Attachment 32
3.6.5 Alert Notification Setup 32
3.6.5.1 Alert Configuration Set 32
3.6.5.2 Alert Notification 32
3.6.5.3 Alert IP 33
3.6.5.4 Alert Port 33

3.6.5.5 Alert Interval 33
3.6.6 Event Full Screen 33
3.6.7 Event Duration 33
3.6.8 Per Channel Config 33
3.6.8.1 Channel Select 34
3.6.8.2 Video Loss Detect 34
3.6.8.3 Motion Detect 34
3.6.8.4 Detection Configuration 34
3.6.8.5 Alarm In 35
3.6.8.6 Alarm Out 35
4. Basic Operation 36
4.1 View Live / Playback Video 36
4.1.1 Viewing Modes 36
4.1.2 Digital Zoom 37
4.1.3 View Live Cameras 37
4.1.4 View Recorded Video 37
4.2 Sequence 39
4.2.1 Sequence with Main Monitor 39
4.2.2 Sequence with Call Monitor 39
4.3 Search Recorded Video 40
4.3.1 Search by Time 40
4.3.2 Calendar Search 41
4.3.3 Search by Event 42
4.4 Video Export 43
4.4.1 Export from OSD Setup Menu 43
4.4.1.1 Select the External Device 43
4.4.1.2 Select Video for Exporting 44
4.4.1.3 Digital Signature 45
4.4.1.4 Erase Disc 45
4.4.2 Quick Video Export through Front Panel 46
4.4.2.1 ezBurn Introduction 46
4.4.2 Export Normal Video 47
4.4.3 Export Event Video 47
4.5 Dome Control 48
4.5.1 Dome Connection 48
4.5.2 Dome Protocol Setup 48
4.5.3 RS485 Setup 49
4.5.4 Dome Controlling Buttons 49
4.5.5 Set Preset Points 50
4.5.6 Preset Points 51

4.5.7 Run Dome Camera Tour....51
4.6 System Log Exportation....52
5. Remote Monitoring Software....53
5.1 Remote Monitoring System Requirements....53
5.2 Installation of Software....54
5.2.1 Change Internet Settings....54
5.2.2 Install the Remote Monitoring Software....56
5.2.2.1 Login / Logout....58
5.2.2.2 Software Upgrades....59
5.3 Basic Operation....59
5.3.1 View Live Video....59
5.3.1.1 Select Display Mode....60
5.3.1.2 Operate Cameras with Dome Control....60
5.3.2 Instant Recording....61
5.3.2.1 Record Video Instantly....61
5.3.2.2 Playback Instant Recorded Video....61
5.3.3 Playback Video....62
5.3.3.1 Playback Remote Video....62
5.3.3.2 Playback Local *.drv Files....63
5.3.3.3 Playback Controls....63
5.3.4 Verify Digital Signature....64
5.3.5 Search from Event List....64
5.3.6 Take a Snapshot....65
5.3.7 Health Status....65
5.3.8 Remote Monitoring Software Troubleshooting....66
6. OSD Menu System Overview....67
6.1 Username and Password....67
6.2 Key Usage....67
6.2.1 Key Usage in OSD Menu....67
6.2.2 Key Usage in Virtual Keyboard....68
7. OSD System Setup....70
7.1 System/Version Info....70
7.1.1 Model Name....70
7.1.2 Video System....70
7.1.3 Hardware....71
7.1.4 Software....71
7.1.5 MAC Address 1....71
7.1.6 Software Upgrade via Local Device....71
7.1.7 Software Upgrade Via Internet....72
7.2 Language....72

7.3 Date/Time 72
7.3.1 Date / Time 72
7.3.2 Time Zone 73
7.3.3 Date/Time Display 73
7.3.4 Date Display Mode 73
7.3.5 Time Display Mode 73
7.3.6 Daylight Saving Time Setup 74
7.3.6.1 Daylight Saving Time 74
7.3.6.2 DST Start / End 74
7.3.6.3 DST Bias 74
7.3.7 Network Time Protocol Setup 74
7.3.7.1 NTP Server 74
7.3.7.2 Automatically Time Sync 75
7.3.7.3 Manually Time Sync 75
7.4 Unit Name 75
7.5 Show Unit Name 75
7.6 User Management 75
7.6.1 Password Protection 76
7.6.2 Account Setup 76
7.6.3 Authority Setup 76
7.6.4 Load Default Setting 77
7.7 Network Setup 77
7.7.1 LAN Select 78
7.7.2 LAN Setup 78
7.7.2.1 DHCP 78
7.7.2.2 IP 79
7.7.2.3 Netmask 79
7.7.2.4 Gateway 79
7.7.2.5 DNS 79
7.7.2.6 PPPoE Account 79
7.7.2.7 PPPoE Password 80
7.7.2.8 PPPoE Max Idle 80
7.7.2.9 Connect At Booting 80
7.7.2.10 Network Restart 80
7.7.3 Trigger Port 81
7.7.4 Email Address 81
7.7.5 SMTP Setup 81
7.7.5.1 Email via SMTP 81
7.7.5.2 SMTP Server 82
7.7.5.3 SMTP Port 82

7.7.5.4 SMTP Account 82
7.7.5.5 SMTP Password 83
7.7.5.6 Use SSL Connection 83
7.7.6 DDNS Setup 83
7.7.6.1 Enable DDNS 83
7.7.6.2 Host Name 84
7.7.6.3 DDNS Port 84
7.7.6.4 Submit/ Update 84
7.7.6.5 ezDDNS 85
7.8 RS485 Setup 85
7.8.1 Unit ID 85
7.8.2 Baud Rate 85
7.8.3 Bits 85
7.8.4 Stop 86
7.8.5 Parity 86
7.9 Audio Output/Key Beep 86
7.9.1 Audio Output 86
7.9.2 Key Beep 86
7.9.3 Split Mode Audio 86
8. Monitor Setup 88
8.1 Show Camera Title 88
8.2 OSD Transparency 88
8.3 VGA Resolution 88
8.4 Show Color Bar 88
9. Camera Setup 89
9.1 Analog Camera 89
9.1.1 Analog Camera Select 89
9.1.2 Dome Protocol 89
9.1.3 Dome ID 89
9.1.4 Camera Title 90
9.1.5 Covert 90
9.1.6 Brightness 90
9.1.7 Contrast 90
9.1.8 Saturation 91
9.1.9 Hue 91
10. Record Setup 92
10.1 Record Mode Setup 92
10.1.1 Record Resolution 92
10.1.2 Record Format 93
10.1.3 Max Rec. PPS 93

10.1.4 CBR/VBR 93
10.2 Schedule Setup 93
10.2.1 Day / Night Time Start / End 94
10.2.2 Weekend Schedule 94
10.2.3 Weekend Start / End 94
10.3 Preset Record Configuration 94
10.4 Per Camera Config 95
10.4.1 Camera Select 95
10.4.2 Normal PPS 96
10.4.3 Normal Qlty 96
10.4.4 Event Max PPS 96
10.4.5 Event Qlty 96
10.4.6 Event Active 96
10.5 ezRecord Setup 96
10.6 Data Lifetime Setup 97
10.6.1 Data Lifetime Mode 98
10.6.2 Data Lifetime 98
10.6.3 Data Lifetime By Day 98
10.6.4 Data Lifetime By Channel 98
10.7 Circular Recording 99
10.8 Audio Recording 99
10.9 Purge Data 99
10.9.1 Purge All Data 99
10.9.2 Purge All Event Data 99
10.9.3 Purge Event Before 100
10.9.4 Start To Purge 100
11. Sequence Setup 101
11.1 Main / Call Monitor Dwell 101
11.2 Main / Call Monitor Schedule 101
12. Event Setup 103
12.1 Internal Buzzer 103
12.2 Event Icon 103
12.3 Email Notice 103
12.4 Email Attachment 104
12.5 Alert Notification Setup 104
12.5.1 Alert Configuration Set 104
12.5.2 Alert Notification 104
12.5.3 Alert IP 105
12.5.4 Alert Port 105
12.5.5 Alive Interval 105

12.6 Event Full Screen 105
12.7 Event Duration 105
12.8 Per Channel Config 105
12.8.1 Channel Select 106
12.8.2 Video Loss Detect 106
12.8.3 Motion Detect 106
12.8.4 Detection Configuration 106
12.8.4.1 Detected Area Setup 106
12.8.4.2 Sensitivity 107
12.8.4.3 Block Threshold 107
12.8.5 Alarm In 107
12.8.6 Alarm Out 107
13. Database Setup 109
13.1 Total / Free Size 109
13.2 Avail. Rec Time 109
13.3 Internal Disks 109
13.4 Repair On Power Loss 110
14. Configuration 111
14.1 Load Factory Default 111
14.2 Import Configuration 111
14.3 Export Configuration 112
14.3.1 Copy Destination 112
14.3.2 Configuration Name 112
14.3.3 Begin Export 112
14.4 System Log 113
14.5 Operation Log 113
15. Export 114
15.1 Select Device 114
15.2 Select Channel 115
15.3 From / To Time 115
15.4 Select Events 115
15.5 Data Type 115
15.6 Export Format 116
15.7 Digital Signature 116
15.8 Erase Disc 116
15.9 Begin Export 117
16. Shutdown 118
16.1 Power Off 118
16.2 Reboot 118
16.3 Power Key Privilege 118

Appendix A: D-Sub Lead Instruction 120
Appendix B: Recommended HDDs 122
Appendix C: Remote Controller 123
Appendix D: Setup a DVR behind a Router 125
Appendix E: ezRecord Diagram Samples 128
Appendix F: Record Duration 131
Appendix G: DVRPlayer 134
Appendix H: USB Mouse Operation 139
Appendix I: HDD Copy Tool (EXT2IFS) 141

1. Overview

DVR100 Series is an integrated digital video recorder that combines the features of a time-lapse audio / video recorder, a multiplexer, and a video server to create a single security solution.

Its outstanding quadplex operation enables users to view live video, search and playback any recorded video by date/time or event, and remotely monitor the unit via internet on PC, MEANWHILE the recording of the DVR unit is ongoing simultaneously.

DVR100 Series provides the latest H.264 compression mode. Moreover, a marvelous implementation is the brand-new experience of Graphical User Interface (GUI) that optimizes the monitoring controls of the unit. With the quality displaying features, DVR100 Series is in the meantime enhanced to support Full HD 1080p output.

DVR100 Series is pre-installed with remote viewing and configuration software, which is a Web-browser plug-in allowing users to view live or recorded video images, and enables remote configuration. The remote software is stored in DVR100 Series and deployed over a LAN, WAN or Internet connection to remote Windows-based computers. This simplifies the installation and maintenance of the software components so all remote users are using the same software coming from the unit.

2. System Setup

The notices and introduction on system installation will be described particularly in this chapter. Please follow the description to operate the unit.

In order to prevent the unit from data loss and system damage that caused by a sudden power fluctuation, use of an Uninterruptible Power Supply (UPS) is highly recommended

2.1 Position the DVR

First, note to position / mount the DVR in a proper place and be sure to power off the unit before making any connections. The placed location should avoid hindering or blocking the unit from airflow. Enough airflow is needed to protect the unit from overheating. The maximum allowable temperature of operating environment is 40°C.

The unit utilizes heat-conducting techniques to transfer internal heat to the case, especially to the bottom side of the unit.

NOTE: Be sure the rubber feet are not removed, and always leave a space for air ventilation on the unit's bottom side.

2.2 Connect Devices to the DVR

This section lists some important notices that should be read before making any connection to the DVR.

Connecting Required Devices

Before power up the unit, cameras and a monitor should be connected to the unit for basic operation. If needed, connect a call monitor for displaying full screen video of all installed cameras in sequence.

Connecting Short-term Device

If any short-term devices shall be installed to the DVR as parts of the unit system, such as USB ThumbDrive® or any USB devices, etc, make sure those devices are connected only after the unit is powered up. The reason is because the DVR can recognize the external devices only after the power-up process is done completely.

2.3 Rear Panel Connections

There are various connectors on the rear panel for the DVR installations. The following shows the detailed description of each connector.

Main Monitor (BNC/ VGA/ Digital Output)

The DVR supports three different types of main monitor: BNC, VGA, or Digital Output. The main monitor displays live image and playback recorded video in full-screen or split-window format. Digital Output connector is optional.

Call Monitor

The BNC call monitor connector allows users to connect the DVR with an optional call monitor. The call monitor is used to display full screen video of all installed cameras in sequence.

Video In

A group of BNC connectors is offered for video input from installed cameras. The number of connectors equals the number of channels.

Note: The DVR will detect video source of CH1 and automatically adjust the system to NTSC or PAL system.

Audio Out – Main & Call (4CH & 8CH models only)

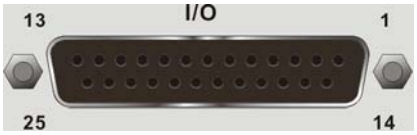
Main & Call Audio Out RCA connectors are provided for connecting the DVR to audio output devices (e.g. amplified speakers). "MAIN AUDIO OUT" will output audio from the main monitor, whereas "CALL AUDIO" will output audio form the call monitor.

Audio In/Out (16CH models only)

16CH models provide audio in/out connection via a D-Sub connector. Users can connect audio source devices for each channel and audio output devices for Main/Call monitors. Refer to ***Setup Guide*** for detailed pin definitions for different models.

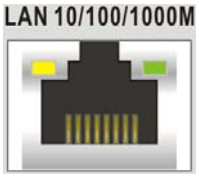
Alarm I/O, RS-485 & Audio In

A D-Sub connector is provided to offer users the flexibility to connect the DVR to Alarm I/O, RS-485 and Audio In devices. Refer to ***Setup Guide*** for detailed pin definitions for different models.



LAN Connector (RJ-45)

The DVR is capable of networking. Once the unit is connected to the LAN network, users can remotely access the unit through the remote software on a PC.



USB Connector (x1)

There is one USB port provided to allow users to connect USB devices, such as USB mouse or USB storage.

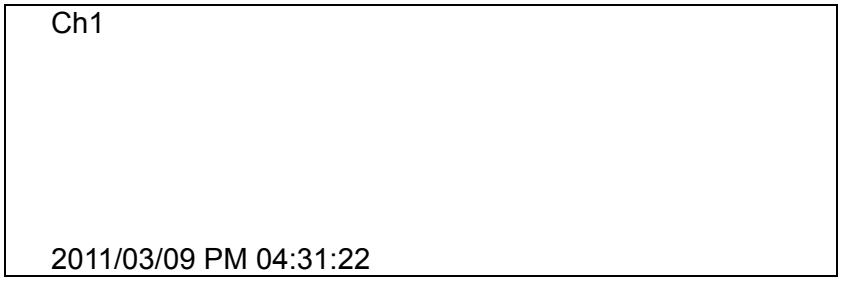
Power Jack

The DVR has a 12V DC power connection jack. Please connect the power adapter shipped with the unit.

3. General System Setup

Before operating the DVR, some general configuration should be setup first. The following subsections will introduce function keys on the front panel and general configuration of the DVR.

The regular displayed OSD information and its displayed positions are shown as following figure. Title of the channel will be displayed on the top-left corner of the window, either in full screen mode or in multiple channel mode. The current operation status and date/time information will be displayed in the status bar at the bottom-left corner of the screen. Move the cursor to any status icon and its description will be displayed. Refer to the ***Setup Guide*** for a list of status bar icons and their descriptions.



3.1 Front Panel Introduction

The front panel controls enable users to control the unit and preset the programmable functions.

3.1.1 LED Definition

The LEDs on the front panel of the DVR are described as follow.

REC LED
The LED blinks while the DVR is recording.

Alarm LED
The LED lights up when an alarm is triggered.

Network LED
The LED lights up when the DVR is connected to a network and blinks when the data is being transferred.

3.1.2 Function Keys

This section describes the functional keys on the front panel of the DVR. Refer to the ***Setup Guide*** for the graphical illustration of functional keys.

Power Key

When the quick shutdown function is enabled, press and hold this key to quick shutdown the DVR. Refer to section **Power Up / Shutdown the DVR** for more information about the setting of quick shutdown function.

CHANNEL

- In both Live and Playback modes, press the CHANNEL key to view the corresponding video in full screen. The number of the CHANNEL keys corresponds to the number of cameras supported by the unit.
- In Dome Control mode, press "1" to access the Set/Go Preset menu.
- In OSD number keyboard, press keys "1" ~ "9" to input number 1~9, and press key "10" to input number 0.

DOME(PTZ)

Press the key to enter dome control mode. Please refer to section **Dome Control** for detailed controlling operation.

MODE

Press repeatedly to select for preferred monitor display format. The available viewing modes includes: full-screen, 4-window (2×2), 9-window (3×3) and 16-window (4×4). Refer to section **Viewing Modes** for detailed information.

SEQ (Sequence)

Press to start automatic sequence display of video from all installed cameras.

MENU

Press this key to enter the OSD setup menu.

COPY

In Playback mode, press COPY to select the start and end time of the export video. Refer to section **Video Export** for detailed information.

CALL

In Live mode, press this button to enter call monitor control mode.

PLAY/STOP

Press this key to switch between live image and playback video.

NOTE: According to record setting, part of the latest video cannot be played back because the video is still saved in the buffer.

FREEZE

- Press FREEZE while viewing live image, the live video will be frozen. The date / time information shown on the monitor will continue updating. Press FREEZE again to return to live mode.
- Press FREEZE while playing the recorded video, the playback video will be paused. Press LEFT / RIGHT to move the recorded video reverse / forward by single step. Press FREEZE again to continue playing video.

SEARCH

- In both Playback and Live mode, press SEARCH to enter the Search menu to search and playback recorded video by date/time or events.
- Press twice to instantly playback the latest recorded videos.

ESC

- Press to cancel or exit from certain mode or OSD setup menu without changing the settings made previously.
- When password protection is switched off, press ESC for five seconds to lock up the system. Press ESC for five seconds again to unlock.

NOTE: Enter the OSD menu and go to <System Setup> → <User Management> to enable or disable the password protection.

Direction Keys

- In Zoom mode, press these keys to move to desired directions.
- In the OSD setup menu, the LEFT/ RIGHT keys are used to move the cursor to previous or next fields. To change the value in the selected field, press UP/ DOWN keys.

ENTER / ZOOM

- In OSD setup menu or selection interface, press this key to make the selection or save settings.
- In live full screen view mode, press this key to view a 2× zoom image. Press it again to exit Zoom mode.

3.2 Enter OSD Setup Menu

The configuration of the DVR can be customized by entering the intuitive Graphical User Interface (GUI) OSD setup menu. Collaborating with a USB mouse, setting up the DVR can be easy as operating on a PC. Press MENU and select an account to login.

The next step is to enter a corresponding password. The preset password for the administrator account "admin" is "1234".

NOTE: It is strongly suggested to change the preset password to prevent unauthorized access to the unit.

An icon displayed at the status bar will show the authority level of the account. Under logout condition, the "Guest" icon will be displayed. When an account is logged in, its authority level number (1~8) will be shown.

Before completely logout, other functions can also be accessed without having to login again. There are two ways to logout: manually logout by pressing ESC key at Live mode, or auto logout when keys are not pressed for 5 minutes at Live/ Menu mode.

3.2.1 User Management

The DVR provides the option to create up to seven sets of usernames and passwords with customized authority, excluding the preset "admin" account. From the Main Menu, select <System Setup> → <User Management> and the menu is as the following:

User Management	
Password Protection	On
Account Setup	
Authority Setup	
Load Default Setting	No

Password Protection

Select <On> to request for username and password for accessing functions listed in Authority Setup menu, or select <Off> to allow free access.

Account Setup

Setup customized account, password, and privilege level in this menu. The account is case sensitive. The privilege level rank from levels 1~8, which level 8 has the highest privilege. Alternatively, select <Disable> to stop using the account.

NOTE: The username and authority level of the preset "admin" account cannot be changed.

Authority Setup

Setup the allowed authority level for accessing the functions listed in this menu. The items include: Playback/Search, Covert Camera, Dome Control, Live Operation, Call Control, Export Data, Menu Access, System Setup, Monitor Setup, Camera Setup, Record Setup, Sequence Setup, Event Setup, Database Setup, Configuration and Shutdown. In accordance with users' privilege level defined in <Account Setup>, the authority level here also ranks from levels 1~8, with level 8 as the highest level. Users will be able to access any function that is set to their equivalent level or lower. Alternatively, select <DISABLE> to allow free access.

NOTE: The "Menu Access" cannot be set to <DISABLE>.

When the account does not have authority to access certain functions, an error message will be displayed on the screen.

Load Default Setting

Select <Yes> to load the default setting.

3.3 Power Up / Shutdown the DVR

If the DVR must be shutdown for any reason, please use the proper shut down and power up procedures to avoid damaging the DVR.

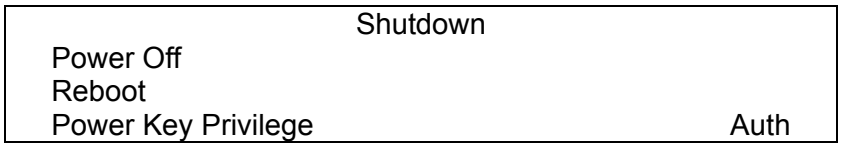
Power Up the Unit

Simply plug in the power adapter that came with the package and the DVR will start to boot.

The color bar and system checking information will be shown on the monitor and then disappear when the unit has been completely powered up.

Restart / Shutdown the Unit

Press MENU and input the username and password that has sufficient authority to access the OSD setup menu. Select <Shutdown> in Main Menu and press ENTER to enter the Shutdown menu, which displays as follows.



<Power Off>

Select this item to shut down the unit. Do not remove the power during shut down until the message "You can safely turn off DVR now!" displays.

<Reboot>

Select this item to reboot the unit. The color bar and system checking information are displayed on the monitor until the unit is completely restarted.

<Power Key Privilege>

According to the setting of this item, users are able to quick shutdown the DVR via long pressing the Power Key. This item defines the action of the power key. The options are <Auth>, <Confirm>, <Direct>, and <Disable>. The following explains each option.

- **Auth:** This will ask users to login with an authorized account, when Password Protection function is enabled. If Password Protection function is disabled, the action will be the same as the next option <Confirm>.

- **Confirm:** When this option is selected, a confirmation message will be shown after long pressed the Power Key. Users can confirm or cancel the quick shutdown function.

- **Direct:** For users who wish to enable the quick shutdown function without any confirmation or login process, select this option and the DVR will automatically shutdown after long pressed the Power Key.

- **Disable:** Select this option to disable the quick shutdown function.

3.3.1 HDD Auto Scan

When the DVR is powering on, HDD auto scan will be initiated if there was previously an unusual power loss or file system error. If by any chance auto scan failed, the HDD will need to be formatted.

NOTE: If users wish to disable the auto scan function, enter the OSD setup menu via an authorized account and access <Database Setup> to set <Repair On Power Loss> to <Off>.

Read the following troubleshooting to finish the auto scanning process.

- **Skip Auto Scan**: During the scanning process, users can press any key to skip the process.
- **Time Expired**: When the scanning process took more than predetermined time (3hrs for 1TB HDD, 6hrs for 2TB HDD, etc), the scanning process is treated as failed and will be automatically terminated. The DVR will reboot.
- **Format HDD**: If the scanning process is failed, users will be prompted to confirm format of the HDD with error. When users confirmed to format the HDD with error, login of an authorized account is required if password protection is enabled. If users select cancel or do not respond within 5 minutes, the HDD with error will be marked as a NG HDD. A NG HDD will not be counted as a part of the DVR's database. It will just stay there doing nothing.
- **Recover NG HDD**: Enter the OSD setup menu via an authorized account and access <Database Setup>. Then select <Internal Disks> and find the NG HDD from the list. Under <Action> column, first select <Format> to format the NG HDD. Then select <Add> to add the formatted HDD to the DVR's database.

NOTE: The above actions will be recorded in the system log data.

3.4 System Date / Time Setting

Users can set the current date, time and other OSD parameters in Date/Time menu (under System Setup menu). The login account should have authority to access the System Setup menu. In OSD setup menu, select <System Setup> and press ENTER, then select <Date/Time> to access the Date/Time menu; the menu displays as follows.

Date/Time	
Date	2011/02/21
Time	PM 10:39:26
Time Zone	OFF
Date/Time Display	ON
Date Display Mode	Y/M/D
Time Display Mode	12 HR
Daylight Saving Time Setup	
Network Time Protocol Setup	

3.4.1 Set Date / Time

Set Date / Time

Select <Date> / <Time> and press ENTER to adjust the settings. LEFT / RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP / DOWN are used to change the value in the selected field.

NOTE: The new date / time setting applies to record new video. The date and time of previously recorded video will not be changed.

NOTE: If time settings have to be changed in any case, it is strongly recommended to format the HDDs to avoid database corruption.

Date / Time Display

Select <ON> or <OFF> to setup whether to display date/time information on the screen. Press ENTER and use the UP / DOWN keys to change the setting.

Date Display Mode

This function allows users to set the OSD display type of the date. There are three options to select from: <Y/M/D>, <M/D/Y> or <D/M/Y>. "Y" represents "Year", "M" represents "Month" and "D" represents "Day".

Move to the item and press ENTER, the option starts blinking. Use UP /

DOWN keys to change the setting.

Time Display Mode

Users can set the time format to <12 HR> or <24 HR>. Use the UP / DOWN keys to change the format.

3.4.2 Daylight Saving Time

Daylight Saving Time

The item is for those people who live in certain regions to observe Daylight Saving Time. Select <ON> to enable, or <OFF> to disable the function.

If the function is disabled, the DST Start / End time and DST Bias will be grayed out and cannot be accessed.

NOTE: If this function is enabled, the date/ time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. "S" indicates summer time and "W" indicates wintertime.

DST Start / End

The items are used to program the daylight saving duration. Use LEFT / RIGHT keys to move the cursor to the next or previous field, UP / DOWN to change the settings in the selected field.

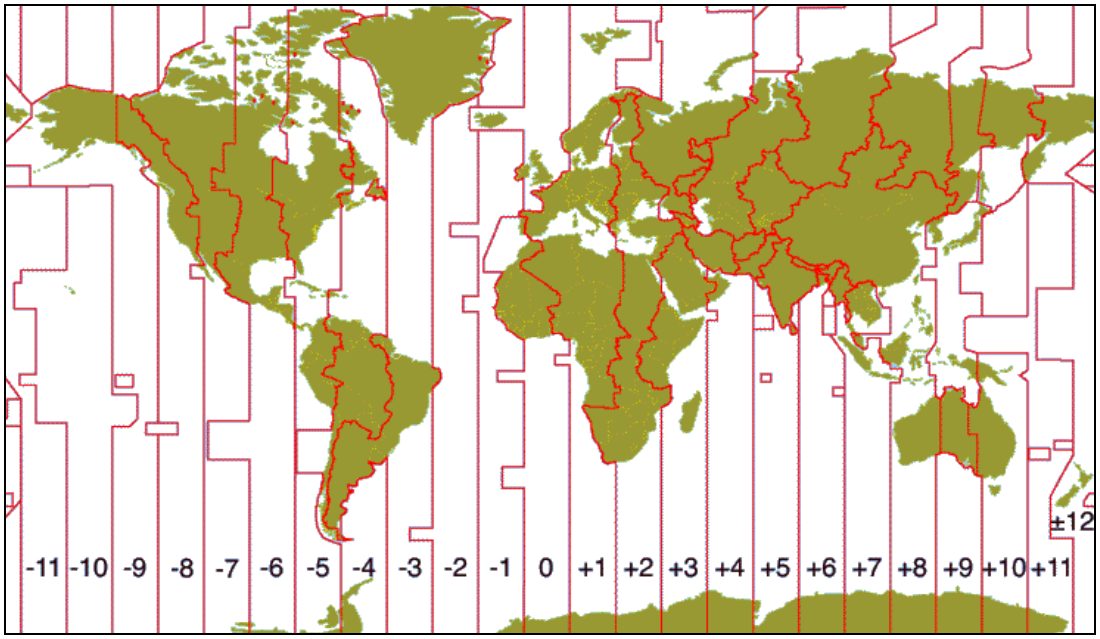
DST Bias

The item allows users to set the amount of time to move forward from the standard time for daylight saving time. The available options are in minutes.

3.4.3 Network Time Protocol Setup

Time Zone

Select <**Time Zone**> to setup the time zone. To find out the correct local time zone, please visit www.greenwichmeantime.com or refer to below figure.



NOTE: The <**Time Zone**> must be set to the correct local time zone or the <**Network Time Protocol Setup**> will not be accessible.

Network Time Protocol Setup

After setup the time zone, <**Network Time Protocol Setup**> will be accessible. Select <**NTP Server**> to setup the time server. The default time server is time.nist.gov, but the users can change to any other time server if preferred. A list of IP addresses of the time servers is listed below.

129.6.15.28	129.6.15.29	132.163.4.101
132.163.4.102	132.163.4.103	128.138.140.44
192.43.244.18	131.107.1.10	69.25.96.13
206.246.118.250	208.184.49.9	64.125.78.85
207.200.81.113	64.236.96.53	68.216.79.113

After the time server is set, set <**Manually Time Sync**> to <Yes> to sync the time. The time sync can also be updated periodically. Set <**Automatically Time Sync**> to <On>, and the time will be automatically synced once an hour.

3.5 Record Schedule / Quality Setting

The Record Setup menu allows users to set recording quality, recording schedules, and other recording parameters. Login with a proper account to access Record Setup menu. In the Main menu, move the cursor to <Record Setup> and press ENTER; the following menu is displayed.

Record Setup	
Record Mode Setup	
Schedule Setup	
Preset Config	Best Quality
Per Camera Config	
ezRecord Setup	
Data Lifetime Setup	
Circular Recording	On
Audio Recording	On
Purge Data	

3.5.1 Record Mode Setup

The Record Mode Setup menu allows users to setup record resolution, etc. The relative record settings, such as preset configuration, will follow the record mode setting. The menu is displayed as the following.

Record Mode Setup	
Record Resolution	720*240
Record Format	H264
Max Rec. PPS	240
CBR/VBR	CBR

- Select record resolution of the video from 720*480, 720*240, and 352*240 for NTSC systems. If the video system is PAL, the options will be 720*576, 720*288, and 352*288.
- Record Format of the video is H.264. It is "read-only".
- Max Rec. PPS will be changed automatically according to the record resolution selected.
- Set the recording bit rate as CBR (Constant Bit Rate) or VBR (Variable Bit Rate).

It is strongly suggested to use VBR encoding when reliable video quality is the top priority.

NOTE: Since a VBR file does not have a fixed size, the HDD space usage cannot be calculated and thus ezRecord function is not supported for VBR mode. Therefore, if ezRecord is selected as the preset record configuration, the option of this menu item will automatically be set as <CBR>.

3.5.2 Schedule Setup

The Schedule Setup is used to set the day and night time, or weekend recording schedule. Select <Schedule Setup> from the Record Setup menu and press ENTER; the following menu is displayed.

Schedule Setup	
Day Time Start	AM 06:00
Day Time End	PM 06:00
Night Time Start	PM 06:00
Night Time End	AM 06:00
Weekend Schedule	On
Weekend Start	Fri PM 06:00
Weekend End	Mon AM 06:00

- Make appropriate changes of the start time of Day and Night Time using Direction keys.
- Press ENTER to confirm the settings or ESC to cancel.
- If a weekend record is required, select <On> to enable the Weekend Schedule in advance and then set the Weekend Start/End time.
- Press ESC to return to previous page.

3.5.3 Preset Record Configuration

The <Preset Config> is used to select the preset recording quality and frame rate. In normal circumstances, it is strongly recommended to set the preset configuration as <Best Quality>. Below table shows the PPS and picture size under <Best Quality> in Half-D1 mode. Please refer to OSD Setup Manual, section **Preset Record Configuration** for more detailed information.

Halfl-D1 mode (NTSC: 720*240@240PPS; PAL: 720*288@200PPS)			
Normal PPS	**Normal Size**	**Event PPS**	**Event Size**
15 NTSC (12.5 PAL)	10 KB / PIC	30 NTSC (25 PAL)	10 KB / PIC

3.5.4 Per Camera Configuration

This function is used to set the Day / Night / Weekend PPS (Picture per Second) and Quality for each channel. The Preset Configuration must be set to <OFF> for accessing these schedules. The menu is displayed as below (Record Mode: 720*240@240PPS in NTSC / 720*288@200PPS in PAL).

Per Camera Config			
Cameral Select			CH01
	Day	**Night**	**Weekend**
Normal PPS	15	15	15
Normal Size	Mid	Mid	Mid
Event Max PPS	30	30	30
Event Size	Best	Best	Best
Event Active	Both	Both	Both

- Firstly, select a Camera for setting its record configuration. The image and recording settings from the selected camera will be displayed on the screen.
- Move the cursor using Direction keys and press ENTER to select an item.
- Change the value using UP / DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Press ESC to return to Record Setup menu.

Please note that the total normal PPS for all channels cannot exceed 240 NTSC (720*240@240PPS) / 200 PAL (720*288@200PPS). To increase one channel's PPS, you may have to reduce others' first. Event PPS is not restricted to this rule, since a smart event scheduler will handle the total PPS with a correct weighting.

3.5.5 Record Event Video Only

If the DVR shall start recording only when alarms are triggered, follow the steps below:

- Enter the OSD setup menu with correct password.
- In the OSD setup menu, select <Record Setup> menu. Move the cursor to the item <Preset Config>, and select <Event only>.

Refer to OSD Setup Manual, section **Preset Record Configuration** for more detailed information.

3.5.6 ezRecord Setup

This item aims to ease the complicated record settings, and to make the setup much easier. Note that the item can be reached only when <ezRecord> is selected as the option for <Preset Config>.

Select <ezRecord Setup> from <Record Setup> and press ENTER, the sub-menu appears as below figure:

ezRecord Setup	
How Many Days To Record	7 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Average Normal PPS	15
Average Normal Quality	Best

Follow these steps to Setup ezRecord:

- Select <How Many Days To Record> and press ENTER, then press UP/DOWN to choose an option. The average normal PPS & Quality will be adjusted automatically. The maximum of days depends of the size of the installed HDD. In other words, the larger the size of the HDD installed, the more days the unit can record.
- Move to <Daytime Record> and press ENTER. This item will determine whether the DVR will record during daytime. If yes, use UP/DOWN to select <Yes> as to enable daytime recording; or select <No> to disable.
- Repeat the same procedures through the 3rd and 4th item, respectively. Note that <Weekend Record> will be inaccessible if <Weekend Schedule> in <Schedule Setup> is set to <No>.
- Select <Average Normal PPS> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.
- Select <Average Normal Quality> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.

NOTE: The current number of connected cameras will affect the recording quality automatically calculated through the <ezRecord Setup>. Therefore, once the number of connected cameras is changed, the <ezRecord Setup> should be reset.

3.5.7 Data Lifetime Setup

Data Lifetime indicates the duration that a video is saved and recallable in the HDD. Only those video recorded within Data Lifetime can be displayed on the screen and played back. The video exceeded Data Lifetime will be hidden and cannot be retrieved for playback.

Data Lifetime Setup	
Data Lifetime Mode	General
Data Lifetime	0 Days
Data Lifetime By Day	
Data Lifetime By Channel	

NOTE: To playback a video exceeding the data lifetime, please extend the duration until the recording data / time of the video is included.

Data Lifetime Mode

This item allows the user to choose preferred data lifetime mode. There are three types of data lifetime mode: General, By Day, and By Channel. When a specific mode is selected, further settings of the other two items below will be grayed out and cannot be accessed.

Data Lifetime

When data lifetime mode is set as <General>, this item will be accessible. Press ENTER to select this item and press UP / DOWN keys to set the data lifetime. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

Data Lifetime By Day

When data lifetime mode is set as <By Day>, this item will be accessible. Enter this menu and users can setup data lifetime of each weekday independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

Data Lifetime By Channel

When data lifetime mode is set as <By Channel>, this item will be accessible. Enter this menu and users can setup data lifetime of each channel independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

3.5.8 Circular Recording

Users can choose to record video in circular mode or in linear mode. If circular mode is selected, the DVR will stores new video into the HDD spaces while overwrite the oldest recorded video. Alternatively, if linear mode is selected, the DVR will stop recording when the HDD is full. The percentage of HDD usage will be displayed at the status bar. Moreover, an "ALMOST FULL" icon will show up at the status bar when HDD usage reached 98%. In the mean time, an internal buzzer will start beeping.

From the Record Setup menu, move the cursor to <Circular Recording> and press ENTER, then select <On> / <Off> using UP / DOWN keys.

3.5.9 Audio Recording

When an audio source device is connected, it will be automatically set to <On>, audio input is recorded and saved with the video. When no audio source device is connected, it will be automatically set to <Off>.

3.5.10 Purge Data

This item is used to delete the Normal or Event recording video. In Record Setup menu, move the cursor to <Purge Data> and press ENTER; the Purge Data menu is displayed.

Purge Data	
Purge All Data	No
Purge All Event Data	No
Purge Event Before	2000/01/01
Start To Purge	No

Purge All Data

The item is used to delete all recorded video from the database. Set this item to <Yes using UP / DOWN keys, and start the deletion by setting <Start To Purge> to <Yes>.

Purge All Event Data

The item is used to delete all event video from database(s). Using UP / DOWN keys to select <Yes> and start the deletion by setting <Start To Purge> to <Yes>.

Purge Event Before

The item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value.

Start To Purge

After the video or data to be deleted are selected, set this item to <Yes> to start the deletion or choose <No> to cancel.

3.6 Event Setting

This menu allows users to determine the DVR's behavior in response to alarm events. In the Main menu, move the cursor to <Event Setup> and press ENTER. The following menu is displayed. Items in the Event Setup menu are described in the following subsections.

Event Setup	
Internal Buzzer	On
Event Icon	On
Email Notice	Off
Email Attachment	Off
Alert Notification Setup	
Event Full Screen	None
Event Duration	20 Sec
Per Channel Config	

3.6.1 Internal Buzzer

This item allows users to enable / disable internal buzzer of the DVR. If <On> is selected, the buzzer is activated in response to alarm events. If <Off> is selected, the buzzer is not activated.

3.6.2 Event Icon

This item enables (On) / disables (Off) the display of event icons on the monitor when alarm events occur. The event icons are represented by a character according to the event types respectively. Refer to the following table for association of event icons and event types.

Event Icon	Event Type
A	Alarm in event
M	Motion detection event
L	Video loss event

3.6.3 Email Notice

The item enables (On) / disables (Off) the Email notification of an event. When an alarm event is triggered and <Email Notice> is enabled, an email regarding the alarm event will be sent.

NOTE: In order to send an event notification email successfully, ensure that the DVR is connecting to the internet.

3.6.4 Email Attachment

The function allows the DVR to send out a brief AVI video regarding the event. The number of the attached AVI video will be equivalent to the number of cameras connected to the DVR. For example, if the DVR has been connected with 8 cameras, then 8 videos will be attached to the notice email. The total size of the video will be about 2 MB. Select <On> to enable this function; or <Off> to disable it.

NOTE: The video clips of the Email Attachment will ONLY be in *.avi format. Please download the Divx Player from www.divx.com to playback the *.avi files.

3.6.5 Alert Notification Setup

This function allows users to send alert notifications to the CMS software which had been installed to users' computer. For further setup instruction at the CMS side, please refer to the CMS user's manual.

Alert Notification Setup	
Alert Configuration Set	1
Alert Notification	OFF
Alert IP	0.0.0.0
Alert Port	9999
Alive Interval	120 Sec

3.6.5.1 Alert Configuration Set

<Alert Configuration Set> provides 3 combinations of Alert Notification, IP, Port, and Interval.

3.6.5.2 Alert Notification

4 options are included in this item: <OFF>, <Event>, <Alive>, and <Both>.

<**OFF**>: The Alert Notification is turned off.

<**Event**>: When the alarm is triggered, the DVR will send an alert message to the CMS.

<**Alive**>: The DVR will send an alive message to the CMS every *N* second just to show you that the connection between the DVR and CMS is in effect. The time interval *N* can be adjusted in <Alive Interval>.

<**Both**>: This enables the DVR to send both Event and Alive alert messages to the CMS.

3.6.5.3 Alert IP

The Alert IP must match the IP address of the computer installed the CMS.

3.6.5.4 Alert Port

The ports for DVR and the CMS Alert **MUST** be the same.

3.6.5.5 Alert Interval

Users can define the time interval (1 to 255 seconds) between each alive message.

3.6.6 Event Full Screen

This function allows the DVR to display the alarm channel in full screen size when an alarm is triggered. Select <None> to disable this function; select <Main> to display the alarm channel on Main Monitor when an alarm is triggered; select <Call> to display the alarm channel on Call Monitor; and select <Both> to display the alarm channel on both Main Monitor and Call Monitor.

3.6.7 Event Duration

This item determines the duration of the buzzer and Alarm Out relay function after an alarm is triggered. The available event duration range is from 5 second to 999 seconds.

3.6.8 Per Channel Config

This menu is used to configure the <Video Loss Detect>, <Motion Detect>, <Alarm In> and <Alarm Out> settings for each channel. The menu is displayed as below.

Per Channel Config	
Channel Select	CH01
Video Loss Detect	Off
Motion Detect	Off
Detection Config	
Alarm In	OFF
Alarm Out	ON

3.6.8.1 Channel Select

The item is used to select a desired channel for setting the parameters. Move the cursor to <Channel Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the selection.

3.6.8.2 Video Loss Detect

This item allows users to enable or disable Video Loss as an alarm event. Select <On> to enable Video Loss alarm events, or <Off> to disable.

3.6.8.3 Motion Detect

This item allows users to enable or disable motion detection function of the DVR. Select <On> to enable Motion Detect alarm events, or <Off> to disable. If motion detection function is enabled, it is required to define motion detection parameters such as detection area and sensitivity settings in <Detection Config>.

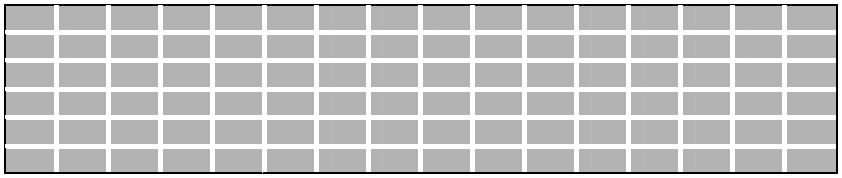
3.6.8.4 Detection Configuration

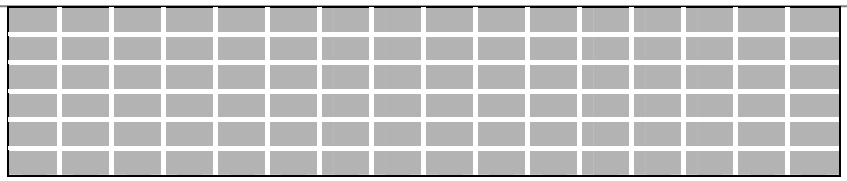
If motion detection function is enabled, it is required to define the motion detection parameters such as detection area and sensitivity settings. Select a channel for setting the parameters, move the cursor to <Detection Config> and press ENTER. The Detection Configuration menu displays as follows.

Detection Config	
Detected Area Setup	
Sensitivity	88%
Block Threshold	4

Detected Area Setup

After selected this item, the detected area is displayed as follows. The detection area consists of 192 (16×12) detection grids.





Use the Direction keys to move the cursor and press ENTER to select or de-select a grid. Press MODE to select all of the grids for detection; press MODE again to de-select all of the grids.

Sensitivity

This item is used to set the sensitivity of detection grids for the camera. A greater value indicates more sensitive motion detection. A motion alarm will be triggered once the amount of motion detected exceeds the Threshold value.

Move the cursor to <Sensitivity> and press ENTER, and then use UP/ DOWN keys to adjust the value. The value is increased by 4% increment.

Block Threshold

<Block Threshold> indicates the motion alarm triggered level; select from <1> to <16>. Selecting <1> means the DVR will trigger the alarm when one grid is detected; and selecting <16> means the DVR will trigger the alarm when 16 grids are detected. Move the cursor to <Block Threshold> and press ENTER, and then use UP / DOWN keys to adjust the value.

3.6.8.5 Alarm In

This item allows users to enable/ disable alarm input detection. According to users' application, select <N/O> (Normal Open) or <N/C> (Normal Close) to enable the alarm input detection, or select <OFF> to disable the detection.

If <N/C> is selected without installing any device, an alarm will be triggered and the Event Icon will always display on the monitor until the selection is changed to <N/O> or <OFF>, or when a device is installed.

3.6.8.6 Alarm Out

This item allows users to enable/ disable the alarm output on the selected channel to activate the relay. The signal can be a light or siren to caution an alarm event. Select <ON> to enable the alarm output, or <OFF> to disable.

4. Basic Operation

The DVR allows users to access some general operations through the front panel easily. The following sections introduce the general operations of the unit.

4.1 View Live / Playback Video

The general functions in live and playback mode are described in the following sections.

4.1.1 Viewing Modes

The DVR provides users versatile ways of viewing both live and recorded video. Following presents these view formats.

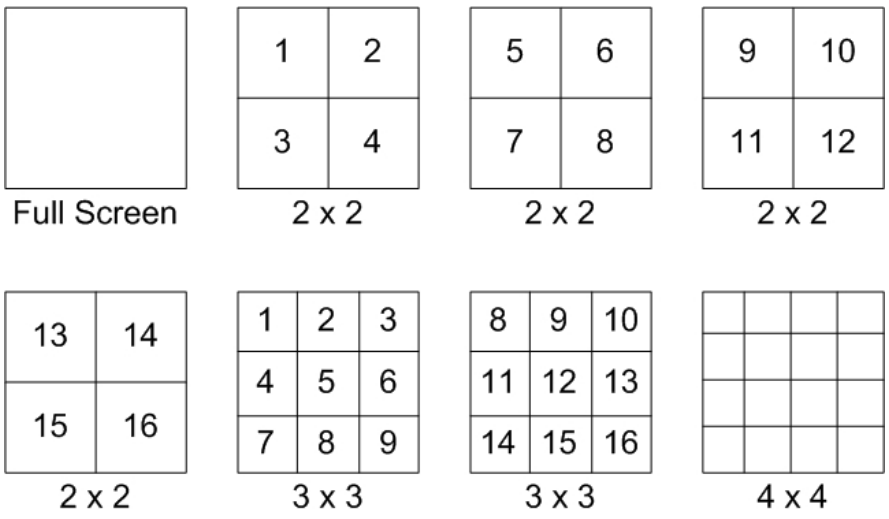
Viewing in Full Screen

Press any CHANNEL key directly to view the corresponding camera image in full screen format.

Viewing in Multi-window

Various multi-window view formats are offered for selection. To switch between available viewing formats, press MODE repeatedly.

The available view formats are illustrated as the following figure.



NOTE: 3x3 viewing mode is only available in 8CH and 16CH models, whereas 4x4 viewing mode is only available in 16CH models.

4.1.2 Digital Zoom

Users are able to view a 2× full screen in live mode. To view the 2× full screen, follow the steps.

- Press any CHANNEL key to view the corresponding camera in full screen.
- Press ENTER to view 2× zoomed screen of the selected camera.
- To view a specific area in 2× zoomed screen, use Direction keys to pan / tilt the zoomed screen.
- Either press ENTER again or ESC to leave the Zoom mode.

4.1.3 View Live Cameras

Users are allowed to view live camera in versatile viewing modes, including full-screen, 2×2, 3x3 and 4×4. The general operation under live mode is described as follows.

Freeze Live Image

Press FREEZE while viewing live image, the image pauses but the date / time information does not, and the system clock continues running.

Press FREEZE to pause the live image; press FREEZE again to resume the live camera view.

4.1.4 View Recorded Video

To view recorded video, users can press PLAY key directly. When press the PLAY key, the unit starts to continue playing back the recorded video from the suspended point of record. If it is the first time to use the PLAY key, the unit will playback from the very beginning of the record. Alternatively, users can select records from the Search menu to play specific video. Refer to section **Searching Recorded Video** for more information.

NOTE: When playing back videos with mass motion recorded in D1 mode (resolution=720x480), press SEQ key to switch on "deflicker function" to avoid gleaming of images. Press SEQ again to switch "deflicker off" and the image will return to real D1 resolution.

The Forward or Reverse speed indicator will be shown on the bottom-left corner of the screen, when in the playback mode.

The general operations in playback mode are described as follows.

Key Usage in Playback

The key usage is slightly different in playback mode. Following is the key usage found in playback mode.

- **LEFT** (Reverse Playback): The key is used to reverse the recorded video while the unit is playing back. Press the key repeatedly to increase the speed of reverse playback by 1×, 2×, 4×, 8×, 16×, or 32×.

- **RIGHT** (Forward Playback): The key is used to play the recorded video fast forward. Press the key repeatedly to increase the speed of forward playback by 1×, 2×, 4×, 8×, 16×, or 32×.

- **FREEZE:** Press FREEZE to pause the playback video. When the recorded video is paused, press LEFT / RIGHT to resume playback video single step reverse / forward, respectively. Press FREEZE again to continue playing video.

- **PLAY:** Press it to start playing back video, exit current mode, or stop playing back video and return to live mode.

Pause Playback and Single Step Forward

To pause and resume recorded video, follow these steps.

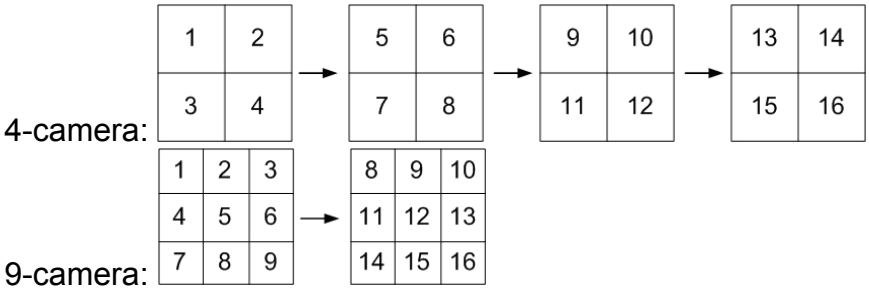
- Press any CHANNEL key to view the corresponding camera in full screen.
- Press FREEZE to pause the current playback image.
- Press LEFT / RIGHT Direction keys to move the video single step reverse / forward. Press and hold LEFT / RIGHT keys to repeatedly reverse / forward the video single step.
- Press FREEZE again to resume the playback operation.

4.2 Sequence

This section introduces the way to view sequence mode with both Main Monitor and Call Monitor, if connected. Sequence function can avoid manual backtracking and provides more flexibility while monitoring surveillance.

4.2.1 Sequence with Main Monitor

Automatic sequence function can be observed in any view mode. Select certain view format and press SEQ to toggle the automatic sequence; press ESC to stop sequencing. The figure below displays the 4-camera and 9-camera sequencing view modes.



(for 16CH models only)

4.2.2 Sequence with Call Monitor

Users are allowed to use the DVR front panel to control a call monitor display without having to access the Main menu. Two viewing modes can be displayed on call monitor: Sequence display and Single camera display. To program the call monitor sequence, see OSD Setup Manual, section **Sequence Setup**.

Follow the steps to control the call monitor.

- Press the CALL key on the front panel to enter Call Monitor Control mode. The "Call Mode" icon will be shown in the status bar.

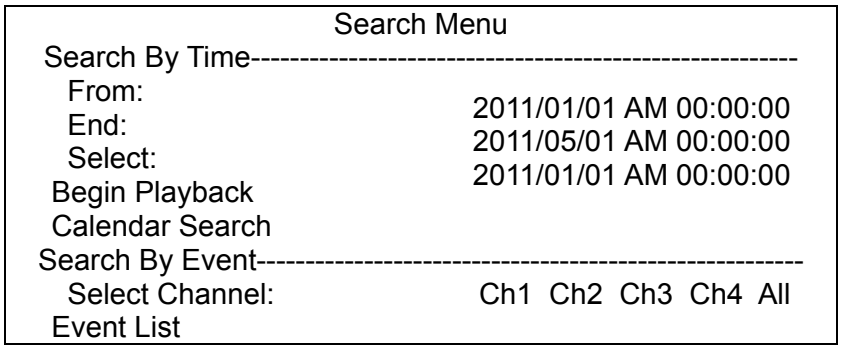
Press 1-16 Key To Select Channel Press SEQ To Enable Sequence

- Press CHANNEL key to display the associated camera on call monitor.
- Alternatively, press SEQ repeatedly to display the sequence of cameras previously programmed in Call Monitor Schedule menu.
- Press ESC to return the front panel to Main Monitor Control mode.

4.3 Search Recorded Video

The DVR is capable of searching and playing back recorded video by time or by events. To search by time, select a specific date and time of the wanted video. To search by event, select channels to display the event list.

In live or playback mode, press SEARCH to enter the Search menu, shown as below.



4.3.1 Search by Time

Follow the steps to search video by date and time.

- Press SEARCH to enter the Search menu.
- Move the cursor to "From" and press ENTER will start playing recorded video from the specified "From" time.
- Move the cursor to "End" and press ENTER will start playing recorded video from the specified "End" time.
- Move the cursor to "Select" and press LEFT/RIGHT keys to choose date/ time. Press ENTER and adjust the values by UP/DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Move the cursor to <Begin Playback> and press ENTER to start playing back the selected video.
- Press PLAY again to return to live video.

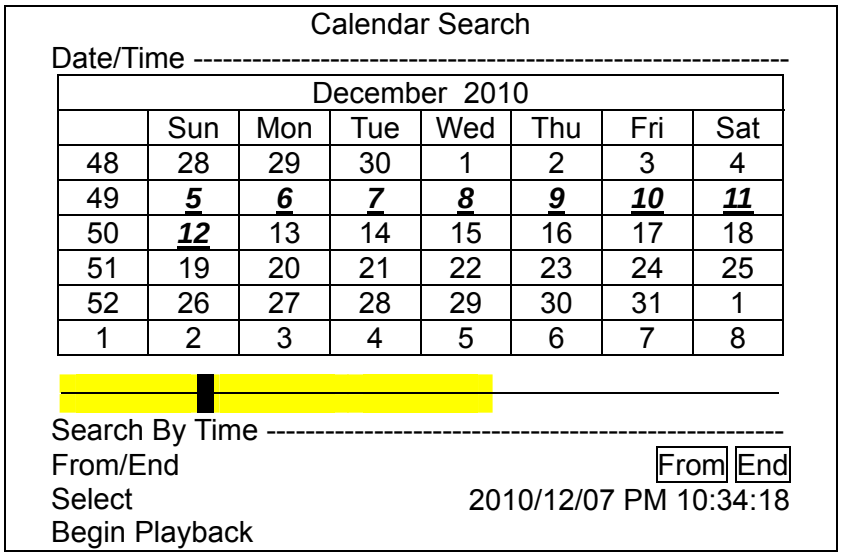
NOTE: If there is no available recorded video that matches the specified time and date, the unit starts playback from the next available video.

NOTE: The date/time information will be shown on the screen with a DST icon if the Daylight Saving Time function is enabled. "S" indicates summer time and "W" indicates winter time.

4.3.2 Calendar Search

Follow the steps below to search recorded video via Calendar Search.

- Press SEARCH button to enter the Search menu.
- Move the cursor to <Calendar Search> and press ENTER. A calendar will be shown as below.


Calendar Search
Date/Time ----------
December 2010
Sun Mon Tue Wed Thu Fri Sat
48 28 29 30 1 2 3 4
49 5 6 7 8 9 10 11
50 12 13 14 15 16 17 18
51 19 20 21 22 23 24 25
52 26 27 28 29 30 31 1
1 2 3 4 5 6 7 8
Search By Time ----------
From/End
From End
Select
2010/12/07 PM 10:34:18
Begin Playback

- Move the cursor to year/ month and press ENTER. Then press UP/DOWN keys to adjust the value and press ENTER again to confirm.
- Move the cursor and press ENTER to select any date shown in bold and underlined font. The bar below the calendar will change according to the recorded data of the selected date.
- Then select preferred time from the time bar. Alternatively, move the cursor to the time shown at the bottom. Press ENTER and adjust the values of hour/ minute/ second via UP/DOWN keys.
- The <From> and <End> buttons allows users to playback video from the beginning or end of the database.
- Note that the time blocks highlighted in red represent events occurred.
- Select <Begin Playback> and press ENTER to start playing back selected video.

4.3.3 Search by Event

"Event List" allows users to search wanted video by event. The Event List is displayed as below figure:

Event List

First Page

Date	Time	Ch.	Type
2011/03/17	11:26:50	2	Motion
2011/03/17	09:53:03	5	Alarm
2011/03/16	16:14:42	3	Alarm
2011/03/15	03:45:31	1	Motion
2011/03/12	22:27:56	1	Alarm
2011/03/12	10:09:29	7	Motion
2011/03/11	12:18:20	6	Motion
2011/03/10	05:16:00	4	Alarm
2011/03/08	17:11:37	2	Motion
2011/03/08	16:29:10	8	Motion
2011/03/08	03:22:17	2	Alarm

The list displays events by date, time, triggered camera and alarm type. As some events are deleted, others are displayed. The latest recorded event video will be listed on the top.

Follow these steps to search event video through Event List:

- Press SEARCH to enter the Search menu.
- To search event video that has been recorded on a specific camera, use LEFT / RIGHT to move the cursor and press ENTER to select or de-select a channel.
- Move the cursor to <Event List> and press ENTER to list the event video of the selected channels. The Event List displays.
- To exit the event list, press ESC.

Follow the steps to playback video from Event List.

- Press and hold UP / DOWN to scroll through the Event List.
- Press ENTER to play back the selected event record.
- Press PLAY to return to live mode.

4.4 Video Export

The following sections will show how to export video through the OSD setup menu and through the hot keys on the front panel, respectively. Note that the system log will keep records of all video exportations, including duration, start time, and end time.

4.4.1 Export from OSD Setup Menu

The Video Export menu enables only the accounts with proper authority to export recorded video with digital signature to a USB storage device or a DVD+RW drive. Login with an authorized account to export video.

The exported video will be named by the exporting date and time, and classified by event type. Each recorded video will be exported into four files if digital signature is required, including *.gpg, *.avi (or *.drv), *.sig and readme.txt.

Make sure an external storage device is available and connected to the appropriate port for video export. From the Main menu, select <Export> and press ENTER. The menu is displayed as below.

Export	
Select Device	
Select Ch:	Ch1 Ch2 Ch3 Ch4 All
From:	2010/12/07 AM 11:50:05
To:	2010/12/09 PM 03:09:18
Select Events	
Data Type	Normal
Export Format	DRV
Digital Signature	No
Erase Disc	No
Begin Export	No

4.4.1.1 Select the External Device

The available external devices for exporting video will be listed by name and free size in Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
xxx-xxx-x-x-xx	256 MB	No
xx-xxx-xx-xxxx	1.5 GB	No

The DVR only supports EXT3 file system. If an external HDD will be connected to the unit, ensure the format of the HDD is EXT3.

Device Name

The item shows the name of the available device.

Available

The item shows the free space of the available device.

Select

Set the item to <Yes> to set it as an exporting destination, or <No> to cancel.

4.4.1.2 Select Video for Exporting

Select video from desired channel(s) with specific date / time and/or event(s), and set the item <Begin Export> to <Yes> to start exporting. Following are the items for selecting video.

Select Channel

Select the channel to export. Move the cursor to the desired channel using LEFT / RIGHT keys, select or de-select a channel by pressing ENTER.

From / To Time

The items are used to set the time which data export begins and ends. Move the cursor using LEFT / RIGHT keys, and press ENTER to select the date / time items; adjust the selected date and time value by UP / DOWN keys.

Select Events

Select this item to display the event list. Move the cursor to scroll through the event list and press ENTER to select event(s) to be exported.

Data Type

The item is used to select exporting video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).

Export Format

This item is for selecting exporting video format. The options are <DRV>, <AVI>, and <Original>. The DRV and AVI files are compressed video files while the original files are raw data of the unit's recorded video.

The DRV and original files can only be played back with the remote monitoring software and DVR**Player**, and multiple cameras video can be played back from one file. The AVI files can be played back with Windows Media Player. Note that if multiple channels are exported for AVI files, each channel is exported to a separate file.

4.4.1.3 Digital Signature

Users can export video clip with or without a digital signature. Set this item to <Yes> to export with the signature file, or <No> to export without it.

Each recorded video with digital signature will be exported into four files, including *.gpg, *.avi (or *.drv), *.sig and readme.txt. The *.gpg file name is as the last eight MAC (Media Access Control) address of the unit.

Make sure that an external storage device, such as a USB Hard Drive or USB ThumbDrive, is available and connected to the appropriate port for export.

For more information on verifying digital signature, see appendix **DVR Player** in the OSD Setup Manual.

4.4.1.4 Erase Disc

This function is used to remove data found on a DVD+RW disk prior to exporting new information to the drive. Select <Yes> and press ENTER to start deleting data.

4.4.2 Quick Video Export through Front Panel

Through front panel control, the DVR allows users to easily export wanted video as *.drv file with the built-in DVD+RW or to an external device, such as a USB ThumbDrive, and the exported video will be saved as *.drv file.

If the video is to be exported to an external device, make sure the device is connected to the DVR unit and the port has been set appropriately for video export.

NOTE: Once an external device has been connected to the DVR, the device has priority over the built-in DVD+RW. That means the video will be exported to the external device instead of the built-in DVD+RW.

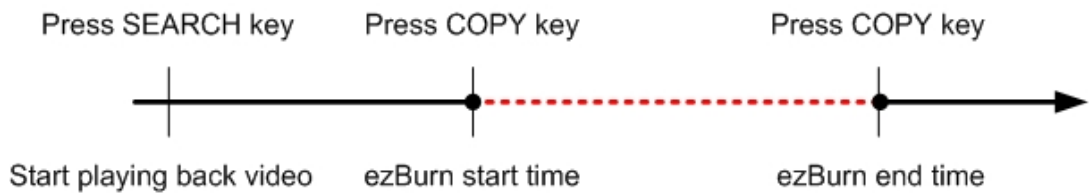
Depending on the size of video, the exporting process may take about 10 minutes to 1 hour.

4.4.2.1 ezBurn Introduction

Built with the ezBurn technology, ezBurn function provides users the easier way to export desired video with built-in DVD+RW or to an external device, such as an USB ThumbDrive.

TWO keys (SEARCH and COPY) and THREE touches are all what's needed for completing the export. The entire exporting process will be done through the front panel, without needing to enter the OSD setup menu.

The ezBurn exporting process is illustrated as below figure:



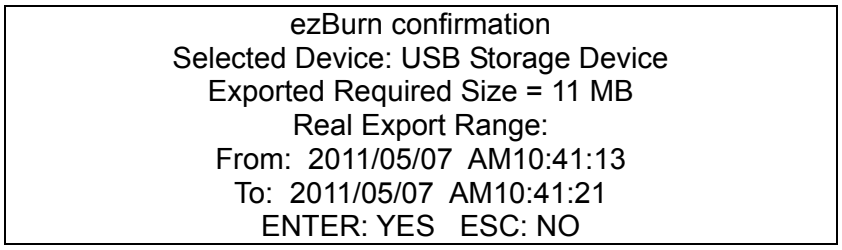
The entire process is described step by step in the following sections.

NOTE: The file exported using ezBurn will be in .drv file format, and it can only be played using the remote player software.

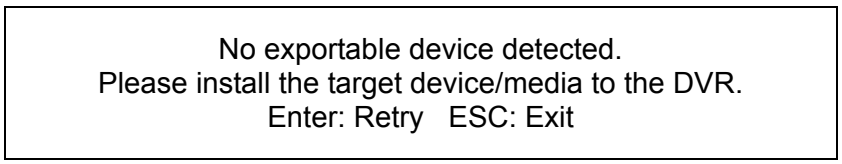
4.4.2 Export Normal Video

To Export normal video to external device, follow these step:

- Press SEARCH and play wanted normal video by entering date and time. Note if the screen is showing in multiple channel mode, please make sure there is no window displaying in Live mode, or the export will not work.
- After entering playback mode, play the video and press COPY once to mark the starting point of the export video. The playback continues.
- Press COPY again to mark the ending point of the export video. Then the "ezBurn" window will display as below figure. The information shown on the window is "read only".



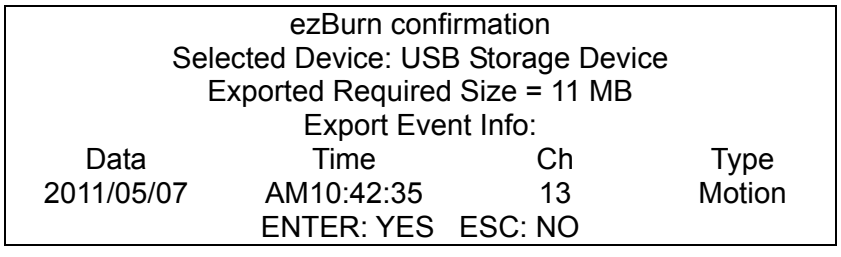
- Press ENTER to start the export; or, press ESC to abort.
- If there is no any exportable device connected to the DVR unit, then a warning message will be shown on the screen, as below figure:



4.4.3 Export Event Video

To export event video, follow these steps:

- Press SEARCH and play wanted event video. To play event video, refer to section **Searching Recorded Video**.
- After entering the playback mode, press COPY. The "ezBurn" window will display as below figure. The information shown is "read only".


ezBurn confirmation
Selected Device: USB Storage Device
Exported Required Size = 11 MB
Export Event Info:
Data Time Ch Type
2011/05/07 AM10:42:35 13 Motion
ENTER: YES ESC: NO

- If there is no any exportable device connected to the DVR unit, a warning message will be shown on the screen
- Press ENTER to start the export the whole event video to the connected device; or, press ESC to abort.

4.5 Dome Control

The DVR allows users to control a dome camera by the front panel. In Live mode, users can press CHANNEL key to display the desired dome camera in full screen. To enter Dome Control mode, press the DOME key. To exit Dome Control mode and return to live mode, press ESC or DOME.

4.5.1 Dome Connection

Follow the steps to install dome cameras.

- See ***Setup Guide*** for RS-485 port pin definition.
- Connect the R+, R- terminals on the dome camera to the D+, D- terminals on the RS-485 port by RS-485 cable respectively. Refer to the connection figure illustrated in ***Setup Guide***.

4.5.2 Dome Protocol Setup

The Dome Protocol item lists the available dome protocols for communicating with dome cameras connected to the DVR. From the Main menu, select <Camera Setup> and press ENTER. The following menu is displayed.

Camera Setup	
Analog Camera Select	CH01
Dome Protocol	None
Dome ID	0
Camera Title	CH1
Covert	No
Brightness	0
Contrast	0
Saturation	0
Hue	0

To configure dome protocol, select a camera first and set the communications protocol associated with dome camera using the Direction keys and ENTER.

NOTE: The settings become effective after saving the changes and

exiting from the menu.

4.5.3 RS485 Setup

The DVR controls the domes via RS-485 communication protocol. The RS-485 parameters in the DVR must be set to the same parameters set in dome camera.

Users are allowed to change the RS-485 settings of the DVR. Select <System Setup> in Main menu, then select <RS485 Setup> from the System Setup menu and press ENTER. The following menu is displayed.

RS485 Setup	
Unit ID	224
Baud Rate	9600
Bits	8
Stop	1
Parity	None

The ID number must match the ID address set by the dome. The Unit ID is in the range of 1 to 255. Note that there cannot be any two devices on the same bus given the same ID address, or a conflict may occur.

NOTE: The settings become effective after saving the changes and exiting from the menu.

4.5.4 Dome Controlling Buttons

After pressed DOME to enter Dome Control mode, a dome control panel will be displayed. The controlling buttons are: Iris Close/Open, Focus Far/Near, Zoom Out/In, Preset, Live, Pan/Tilt Speed, Direction buttons, and Auto Focus. The functions are described as below.

Iris Close

Click on it to close the Iris on the dome camera.

Iris Open

Click on it to open the Iris on the dome camera.

Focus Far

Click on it to focus the lens of selected dome camera at a farther point.

Focus Near

Click on it to focus the lens of selected dome camera at a nearer point.

Zoom Out

Click on it to zoom out the lens of selected dome camera. This function enables users to shrink the current image and a larger viewing area can be displayed.

Zoom In

Click on it to zoom in the lens of selected dome camera. This function enables users to enlarge a certain area.

Preset

This key is used to enter the Dome Preset menu to set up certain position as a preset and go to the predetermined preset positions for viewing.

Live

Click on it to exit Dome Control mode and return to live full-screen viewing mode.

Pan/Tilt Speed

Users can select preferred pan/tilt speed.

Direction Buttons

Click on the buttons to pan and tilt the lens of selected dome camera.

Auto Focus

Click on this button to automatically adjust focus of the dome camera.

The front panel keys can also perform the functions listed above. Please refer to ***Setup Guide*** for the graphical illustration of functional keys.

4.5.5 Set Preset Points

The DVR allows users to set preset positions. The amount of preset points depends on the dome manufacturer.

Follow the steps to set preset points.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.

- Use Direction keys to pan/tilt the dome camera to desired position.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed as below.

1	2	3	BS
4	5	6	Set Preset
7	8	9	Go Preset
Exit	0	Clear	Run Tour

- Input a desired preset number.
- Click on the <Set Preset> button to save the position. Now the preset position is set and ready to be called.

4.5.6 Preset Points

Follow the steps to call preset points.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Input a desired preset number.
- Click on the <Go Preset> button to call the preset point. Then the selected dome camera will rotate to the preset position automatically.

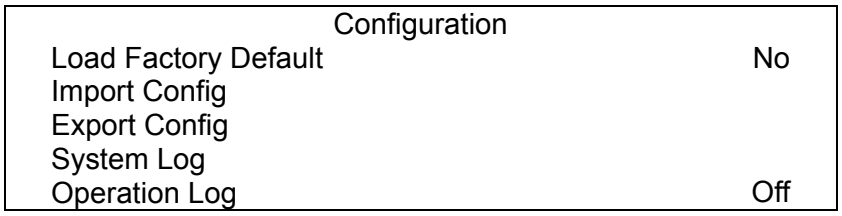
4.5.7 Run Dome Camera Tour

Users can also display dome camera tour setup at the dome camera side. Follow the steps to run display of dome camera tour.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Click on the <Run Tour> button to run display of dome camera tour.
- Press any Direction keys to end the display of dome camera tour.

4.6 System Log Exportation

In the Configuration setup menu, select <System Log> and a list of system logs will be displayed on the screen. Users can export the system log as a data file to an external storage device. Connect a USB storage device and press COPY to export the system log file to the USB storage device. Note that in the mean time, a digital signature file will also be exported.



Also under the Configuration setup menu, set <Operation Log> to <On> and operation logs will start to be recorded in the system log. Alternatively, set to <Off> and operation logs will not be part of the system log.

5. Remote Monitoring Software

The remote monitoring software is a remote browser-based software application designed to operate with the DVR products. Using the software, users are allowed to view live and recorded video, and configure the DVRs remotely via a LAN, WAN or Internet on a personal computer.

The connected PC will automatically download the remote monitoring software plug-ins from the DVR when the DVR is connected by entering its IP address in the address bar on the browser.

Due to the setting items are similar to those listed in the DVR's OSD setup menu, please refer to the sections above for setting configuration of the remote monitoring software.

The tasks can be performed with the remote monitoring software are listed below:

- Remote viewing of live/ recorded video
- Remote setup of the DVR
- Remote control of dome cameras
- Alarm notification from the DVR
- Up to three connections to one DVR using the remote monitoring software, including the preset "admin" and two other accounts

5.1 Remote Monitoring System Requirements

Items	Minimum Requirements
Personal Computer	**Minimum:** Intel® Pentium® M CPU 1.40GHz RAM 512 MB
	Recommended: Intel® Core™2 Quad CPU Q6600 @ 2.4GHZ RAM 2 GB
Hard Disk Drive	Requires 20 MB for software installation
Operating System	Windows XP, Windows Vista, and Windows 7
Web Browser	Microsoft Internet Explorer version 6.0 or above
Monitor Resolution	Minimum 1024 x 768 with 16-bit color
Network Card	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation; must match the network configuration

5.2 Installation of Software

Refer to the following description to install the remote monitoring software.

5.2.1 Change Internet Settings

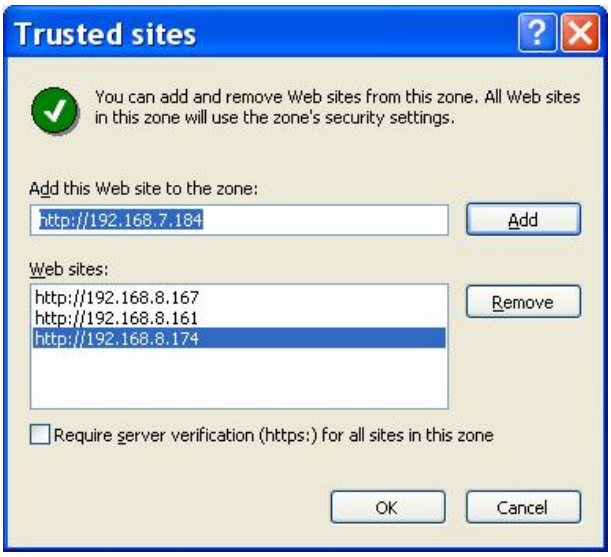
The PC operating with the remote monitoring software should be set to accept ActiveX plug-ins. Please follow the steps to set the Internet security settings appropriately.

- Before operating the remote monitoring software, please check the IP address of the DVR. To check the IP address, press MENU key on the unit and enter password to access OSD setup menu. Select <System Setup>, <Network Setup>, then <LAN Setup> to check the IP.
- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.

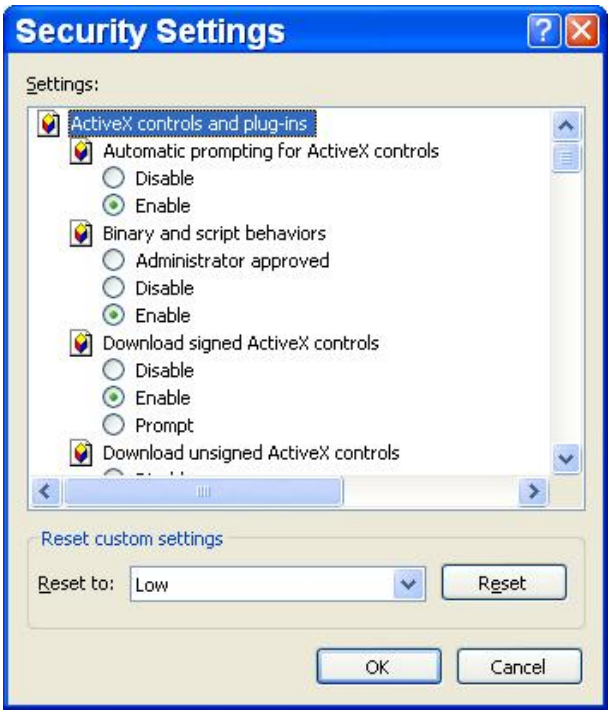
NOTE: Windows IE provides the ActiveX component that is required when using the remote monitoring software.

- Select <Tools> from the main menu of the browser, then <Internet Options>, and then click the <Security> tab.
- Select <Trusted sites> and click <Sites> to specify its security setting.

- Uncheck "Require server verification (https:) for all sites in this zone". Type the IP address of the unit in field and click <Add> to add this web site to the zone.



- Click <OK> to confirm the setting and close Trusted sites dialog.
- In the Security Level area, click <Custom Level>. The Security Settings screen is displayed.



- Under <ActiveX controls and plug-ins>, set all items to <Enable> or <Prompt>.
- Click <OK> to apply the setting and close the <Security Settings> screen.
- Click <OK> to close Internet Options dialog.

Now the installation can continue to the next step.

5.2.2 Install the Remote Monitoring Software

Start the browser to initiate the installation of the remote monitoring software on the PC. The IP address of the DVR can be saved as a Favorites item in the web browser to enable easy access in the future.

- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.
- Enter the IP address of the DVR in the address bar at the top of the browser.
- The ActiveX controls and plug-ins dialog will show twice for confirmation; click <Yes> to accept ActiveX plug-ins. The remote monitoring software plug-ins will be downloaded and installed on the PC automatically when the connection is successfully made.

NOTE: Do not enter any leading "0" characters in the address, for example, "192.068.080.006" should be entered as "192.68.80.6". If the default trigger port 80 is changed into another one, take port 81 for example, the IP address should be entered as "192.68.80.6:81".

- A version check starts to verify whether the remote monitoring software was installed already, and also check if the version is the same as that stored in that particular DVR. This process may take up to 30 seconds.
- When the software is completely downloaded and installed, the Login Screen is now displayed.

Enter Network Password
This secure Web Site (at 192.168.7.184) requires you to log on.
Please type the User Name and Password that you use for DVR.
User Name
user
Password
Save this password in your password list
OK
Cancel

5.2.2.1 Login / Logout

Login using the same accounts setup in the DVR. The authority is also the same as setup in the DVR.

One preset account "admin" and up to two other accounts can access a DVR at the same time. Nevertheless, if the "admin" account is currently accessing the unit's OSD setup menu via front panel of the unit, then the "admin" account at the remote monitoring site cannot change the settings at the same time. The "admin" account of the DVR has priority.

Enter Network Password
This secure Web Site (at 192.168.7.184) requires you to log on.
Please type the User Name and Password that you use for DVR.
User Name
user
Password
Save this password in your password list
OK
Cancel

The following steps demonstrate procedures to view video from remote unit:

- Start the remote monitoring software by entering the IP Address of the DVR in the Address bar of the browser. Alternatively, click on the Favorite entry for the unit (if the IP address of the unit has been set).
- Enter the Username and password. The login username and password can be saved to ease future login. The default username and password is **admin** / **1234**.
- Click <OK> to login to the DVR. The process may take a few seconds.
- If the connection is made successfully, the main window will display live video of the attached cameras.

If the IE browser is closed, the remote system is logout and disconnected from the DVR at the same time.

5.2.2.2 Software Upgrades

If a new version of the remote monitoring software is available on the DVR, upgrade will be prompted while accessing the unit. Follow the steps to upgrade the software.

Confirm
An Incompatible version of VideoViewer.ocx was detected on your PC.
Would you like to download the correct version for proper operations?
Notice: You must have Windows Administrator privilege to update successfully.
Please start your browser again after it closed.
Yes
No

- The message as the above figure will be prompted. Click <Yes> to accept version upgrade.
- Start the IE again and enter the IP address of the DVR in the Address bar of the browser; or if the unit address is set as a Favorite site, click the Favorites entry for the unit.
- When the software is completely downloaded and installed, the Login Screen will be displayed.

5.3 Basic Operation

When a DVR is successfully connected, the main window of the remote monitoring software will be displayed. Please refer to the ***Setup Guide*** for the graphical illustration of functional items.

The functions on the remote monitoring software will be described in the following sections.

5.3.1 View Live Video

View live video from the cameras attached to the DVR by clicking <Live> button on the main window toolbar. Choose desired display mode – full-screen, 2x2 windows, 3x3 windows, and 4x4 windows – after the live images of the DVR are displayed on the main window. When a dome camera is connected and viewed in single channel full-screen mode, the dome camera control operation can be accessed. To choose desired display mode and to operate dome camera control, refer to the following sections.

5.3.1.1 Select Display Mode

Choose the number of windows to be displayed on the main window. Click one of the display buttons in MODE section. Available selections are 4, 9 and 16 camera displays. To view certain window in full screen, either double-click on the wanted window, or click on the corresponding CAMERA button.

5.3.1.2 Operate Cameras with Dome Control

The remote monitoring software allows users to control and configure a dome camera remotely.

Click on any CAMERA button displayed with a dome icon to view the camera in full screen. The Dome Control Panel will be displayed on the main window. The items on the dome control panel are described as follows.

Set Preset (•)

Set Preset is used to set up preset positions. The remote monitoring software allows its user to set up to 255 preset positions according to the allowance of the supported dome cameras.

Use Direction buttons to move dome camera to an appropriate position, and then click the button and choose wanted number from the pull-down list. The preset position is named as the selected number.

Go Preset (•←)

Go Preset is used to call the camera preset point, which was set up with the set preset point function. Click and choose a number to call the preset point for viewing.

Auto Focus (A.F.)

Click on it and the focus of the camera will be automatically adjusted to show a clearer image.

Dome ID (ID)

Click for changing the dome ID and protocol. Proper authority is required to access this function.

Focus +/−

Use these buttons to adjust the camera lens to focus on objects for a clear view. Click on <Focus +> to focus near or <Focus −> to focus far.

Iris +/−

This item is used to open and close the iris to let more or less light into the camera. Click on <Iris +> to open iris or <Iris −> to close iris.

Zoom +/−

Users are allowed to zoom-in or zoom-out using the adjusting buttons. Zoom-in to enlarge a certain area and zoom-out to view more area.

Direction Button

This button is used to pan and/or tilt the dome camera. Click the arrows in the directions to be viewed.

5.3.2 Instant Recording

The Instant Recording function allows users to record video quickly to the PC.

NOTE: The Audio function is set to OFF as the default setting.

5.3.2.1 Record Video Instantly

Follow the steps to start recording instantly:

- Click on the <Instant Recording> button.
- Select the destination folder to save the video.
- Click on the button again to stop recording.

NOTE: The instant recording video will be saved as *.drv file.

5.3.2.2 Playback Instant Recorded Video

Follow the steps to playback a video recorded by "Instant Recording".

- Click <Play> on main window toolbar and click <Local Playback> tab.
- Click <Open> to choose a recorded file.
- Click <OK> to start playing the recorded video.

5.3.3 Playback Video

The remote monitoring software allows users to view recorded video either from the DVR, or from the hard disk drive of the PC

To access the Playback screen, click <Play> button on the main window toolbar. There are three tabs in the Playback screen: <Remote Playback>, <Local Playback>, and <Verify> tabs. <Remote Playback> allows users to play back from the DVR. <Local Playback> enables users to playback a recorded video file stored on the hard disk drive of the PC. <Verify> is provided for users to authenticate if the exported video is altered.

The DVR continues recording while playing back recorded video on the PC, either remote playback or local playback.

5.3.3.1 Playback Remote Video

To view remote video, click <Play> on the main window toolbar, and then <Remote Playback> tab. The <Remote Playback> screen will be displayed.

The <From> and <To> in the <Available Record Video> display the date and time from which recorded video is available for playback.

To playback remote video segments, follow these steps:

- Choose <Playback> in <Select> field for playback recorded video.
- In <Start> field, users can change the date and time either by typing desired numbers directly or using the arrow buttons.

  To type directly:
  Click on day, month and year of date field respectively, and type the desired numbers directly. Follow above steps to adjust the hour, minute and second of time field.

  To use the arrow buttons:
  Click on the arrow button next to the date field to display the calendar; then click the left and right arrow at the top of the calendar to change the date. Use up and down arrow next to the time field to change to the wanted time.

- The other way to select date and time is by moving the blue sliding bar.
- Click <OK> to start the playback, or click <Close> to abort.

- The other option <Download (.DRV)> in <Select> field enables users to download the video segment of selected date and time to the PC. The selection of time duration is the same as described above. Files downloaded will be in *.drv format.

5.3.3.2 Playback Local *.drv Files

The <Local Playback> tab allows users to playback *.drv video files stored in the PC's hard drive.

Follow below steps to playback a downloaded *.drv file with the remote monitoring software.

- Click <Open> and the file selection screen is displayed.
- Select the *.drv video file for playback and click <OK>.
- Click <OK> in the <Local Playback> Screen to start the playback, or click <Cancel> to abort.
- View the video playback using the Playback controls.
- To end the playback, click <Live> to return to live video.

5.3.3.3 Playback Controls

When the local or remote video is being played, the remote monitoring software is in Playback Mode. The playback controls toolbar will emerge on the main window toolbar. The Playback controls and indicators are described as below.

Icon	Name	Description
◄◄	**Fast Backward / Step Backward**	1. Click to play the recorded video in backward direction. Click repeatedly to select the backward playback speed: 1x, 2x, 4x, 8x, 16 x, or 32x. 2. When playback is paused, click repeatedly to move backward step-by-step.
► / ▌▌	**Play / Pause**	1. While playing, click to pause the playback. 2. When paused, click to resume the playback.
►►	**Fast Forward / Step Forward**	1. Click to play the recorded video in forward direction. Click repeatedly to select the forward playback speed: 1x, 2x, 4x, 8x, 16x, or 32x. 2. When playback is paused, click repeatedly to move forward step-by-step.

5.3.4 Verify Digital Signature

The digital signature aims to authenticate a video file exported from the unit. Follow the description to verify the digital signature.

- Click <Play> on the main window toolbar.
- Click <Verify> tab to display the Verify window.
- Click <Browse> to select the *.gpg, *.avi, *.sig files respectively, which belong to the exported video to be authenticated.
- Click <Verify> to start verifying digital signature.
- The result of verify shows in the <Status Log> field. It returns a GOOD or BAD signature result. A GOOD signature indicates the exported clip has not been altered.

5.3.5 Search from Event List

Click SEARCH, the Event List appears. The List contains information about the alarm events that the unit recorded and saved. Up to 1024 events can be listed in the Event List.

The Event List displays each event by its number, the date and time of the event, the type of the event (including Alarm In, Motion Detection, Video Loss, and Over Speed), and the camera channel where the event occurred.

To view an event video, follow these steps:

- Click SEARCH button positioned in the main window toolbar. The Event List appears.
- Scroll through the Event List and highlight the interested events.
- Double-click on the desired event to view the event video.

5.3.6 Take a Snapshot

Snapshot is a simple screen capture tool. When users click on the SNAPSHOT button, it will capture the screenshot of the window that is currently showing on the screen. Each click captures one screenshot to be saved as a JPEG file on the desktop. The snapshot file will be named as "Snapshot-*".

5.3.7 Health Status

This function verifies the HDD status of the DVR. The information items in the status chart are described as below.

Device Name
This item shows the model name of the HDD.

Int./Ext.
This item indicates whether the HDD is an internal or external device.

Total Size
This item indicates the total size of the HDD.

State
This item indicates whether the HDD is active or non-active.

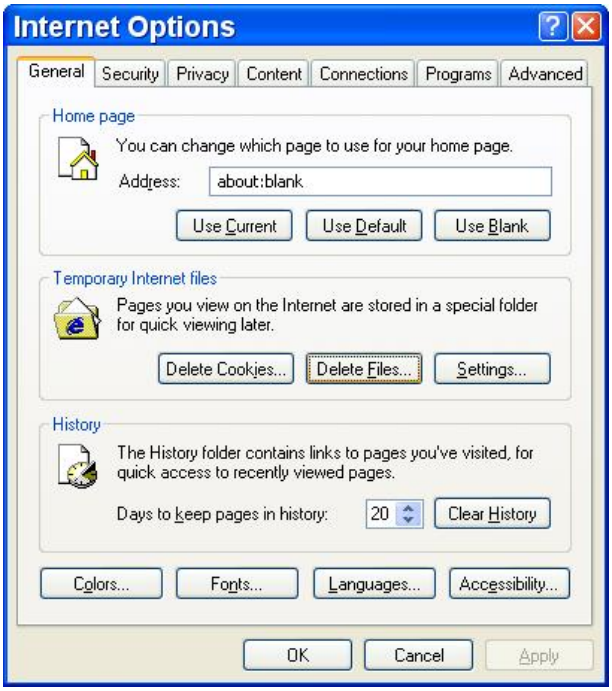
Temperature
This item indicates the current temperature of the HDD in Celsius degree.

5.3.8 Remote Monitoring Software Troubleshooting

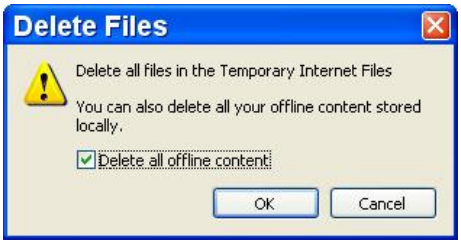
What happened if the server requests to upgrade the software every time the DVR is connected? If the following screen displays repeatedly, please follow the steps to delete the temporary internet files.

Confirm
An Incompatible version of VideoViewer.ocx was detected on your PC.
Would you like to download the correct version for proper operations?
Notice: You must have Windows Administrator privilege to update successfully.
Please start your browser again after it closed.
Yes
No

- Select <Tools> from the main menu of the web browser, then <Internet Options>, and then click the <General> tab.



- Click the <Delete Files> button in the <Temporary Internet Files> field; the <Delete Files> screen displays as below.


Delete Files
Delete all files in the Temporary Internet Files
You can also delete all your offline content stored locally.
Delete all offline content
OK
Cancel

- Check the <Delete all offline content> box and click <OK>.
- Now, enter the IP address of the DVR to make the connection again.

6. OSD Menu System Overview

The detailed functions and settings of DVR100 Series can be set by entering the intuitive Graphical User Interface (GUI) OSD setup menu. Collaborating with a USB mouse, setting up the DVR can be easy as operating on a PC. This chapter particularizes the items and options in the OSD setup menu.

6.1 Username and Password

Press MENU and select an account to login. There are two preset accounts: "admin" and "user". The next step is to enter a corresponding password. The preset password for the administrator account "admin" is "1234", while the preset password for the account "user" is "4321".

NOTE: It is strongly suggested to change the preset password to prevent unauthorized access to the unit.

An icon displayed at the status bar will show the authority level of the account. Under logout condition, the icon will show "Guest". When an account is logged in, its authority level number (1~8) will be shown.

Before completely logout, other functions can also be accessed without having to login again. There are two ways to logout: manually logout by pressing ESC key at Live mode, or auto logout when keys are not pressed for 5 minutes at Live/ Menu mode.

6.2 Key Usage

The key usage differs under the OSD menu and in the Virtual keyboard. The difference can be seen while setting some items, such as Unit Name and IP Address.

6.2.1 Key Usage in OSD Menu

The following introduce some keys used frequently to setup the DVR via the OSD menu.

<Direction Keys>
In the OSD menu, Direction Keys are used to move the cursor to previous or next fields. UP / DOWN are used to change the value in the selected field.

<ENTER>

In OSD menu or selection interface, press the key to make selection or save settings.

<ESC>

Press to cancel or exit from certain OSD menu without saving any changes.

6.2.2 Key Usage in Virtual Keyboard

A virtual keyboard shows up while editing settings such as camera title, unit name, etc. The virtual keyboard displays as follows.

!	@	#	*	-	_	+	=	,	.	/	Back
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<		>>		Space			Cancel			OK		

<To input characters>

Move the cursor by pressing Direction keys and press ENTER to select characters.

<To move the cursor in title entry field>

Select "<<" / ">>" and press ENTER to move the cursor to left / right in the title entry field.

<To delete previous character>

Select <Backspace> and press ENTER.

<To delete current character>

Select <Delete> and press ENTER.

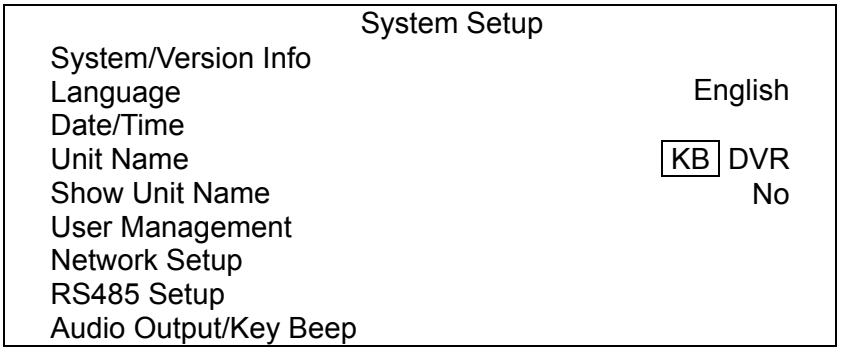
<To exit the virtual keyboard>

Select <OK> and press ENTER to save the settings and exit. Otherwise press ESC or select <Cancel> and press ENTER to exit without saving changes.

NOTE: If a USB keyboard is connected and when any key on the keyboard is pressed, the cursor on the virtual keyboard will be automatically moved to <OK>.

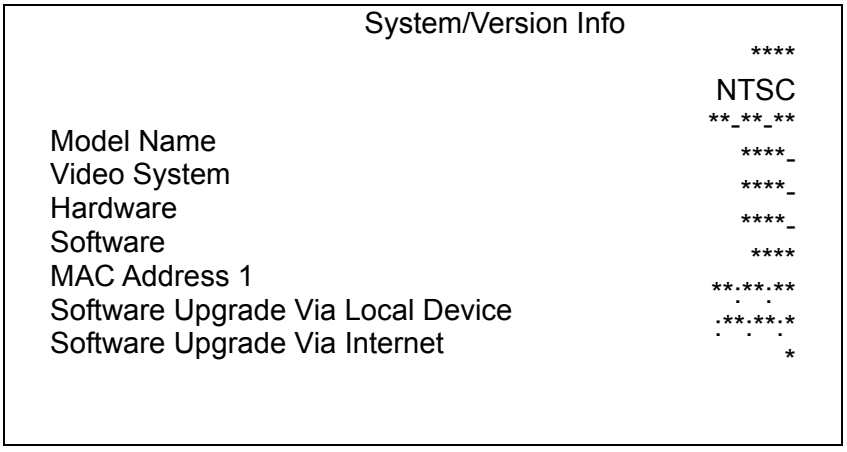
7. OSD System Setup

Select <System Setup> from the Main Menu and press ENTER to enter the System Setup menu. The items in the System Setup menu are described in the following sections.



7.1 System/Version Info

The System/Version Info menu allows users to view system information such as hardware and software version. From the System Setup menu, select <System/Version Info> and press ENTER. The following menu is displayed. The first five items are "read only", thus CANNOT be changed. The items in this menu are described in the following subsections.



7.1.1 Model Name

This item shows the model name of the DVR.

7.1.2 Video System

This item shows the current video system of the DVR.

7.1.3 Hardware

This item shows the hardware version of the DVR.

7.1.4 Software

This item shows the software version installed on the DVR.

7.1.5 MAC Address 1

This item identifies the first Media Access Control (MAC) address of the DVR.

7.1.6 Software Upgrade via Local Device

This item is used for updating software of the DVR100 Series via local device. The menu is displayed as follows.

Software Upgrade via Local Device	
Upgrade Version	Select
xxxx-xxxx-xxxx-xxxx	No

Connect an USB storage device containing upgrade software to the DVR; the available upgrade files will be listed in the menu. To update the system, select a file and use UP / DOWN keys to choose <Yes>. Press ENTER to confirm the selection and start the upgrade process. The DVR100 Series will download the software, update the system files, and reboot automatically.

The upgrade may take several minutes to save the changes in the memory of the system. After the DVR is rebooted, please check the software version again.

NOTE: Power interruption is **NOT** allowed during the software update. Ensure that no power interruption can occur until the DVR is completely rebooted.

NOTE: Do not remove the external USB ThumbDrive / DVD+RW before the DVR has completely shutdown (hard drive and fan are off). Removing the external USB ThumbDrive / DVD+RW before shutdown can cause the system to update improperly.

7.1.7 Software Upgrade Via Internet

The item is used to upgrade the unit's software via the internet. Select one of the listed software versions and choose <Yes>. The DVR downloads the software, updates the system files, and reboots automatically.

7.2 Language

The Language item allows users to select the language for the OSD menu and screen messages. Language selection takes effect immediately when the selection is made. Press UP / DOWN to select from listed languages and press ENTER to confirm.

7.3 Date/Time

Users can set the current date, time and other OSD parameters in this menu. Log in using account with proper privilege to enter the submenu. In System Setup menu, select <Date/Time> and press ENTER. The Date/Time menu displays as follows.

Date/Time	
Date	2011/02/21
Time	PM10:39:26
Time Zone	OFF
Date/Time Display	ON
Date Display Mode	Y/M/D
Time Display Mode	12 HR
Daylight Saving Time Setup	
Network Time Protocol Setup	

NOTE: The reset of date / time setting only applies to new video. The date and time of previously recorded video will not be changed.

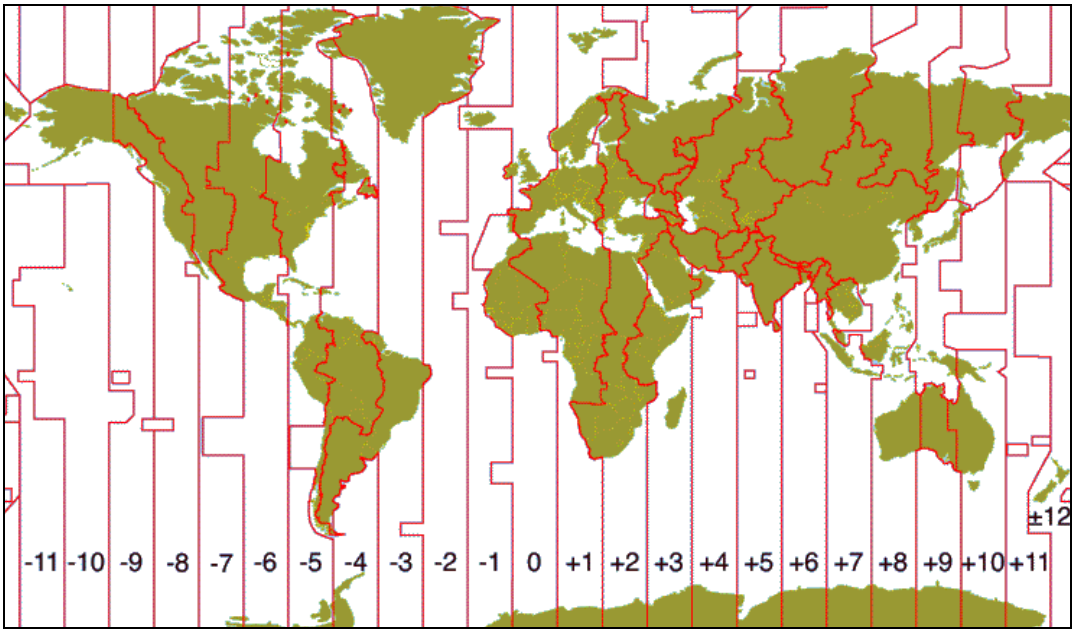
NOTE: To avoid database corruption, formatting the database is recommended after changing Date/Time setting.

7.3.1 Date / Time

Select <Date> or <Time> and press ENTER to adjust the settings. LEFT / RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP / DOWN are used to change the value in the selected field.

7.3.2 Time Zone

Press ENTER to set users' local time zone. Please refer to the following figure or visit www.greenwichmeantime.com to find out users' local time zone.



NOTE: <Time Zone> must be set to users' local time zone or the <Network Time Protocol Setup> will not be accessible.

7.3.3 Date/Time Display

Select <ON> or <OFF> to setup whether to display date/time information on the screen. Press ENTER and use the UP / DOWN keys to change the setting.

7.3.4 Date Display Mode

This menu allows users to set the display type of the date. Three options are provided: <Y/M/D>, <M/D/Y> or <D/M/Y>. "Y" represents "Year", "M" represents "Month" and "D" represents "Day". Use UP / DOWN keys to change the setting.

7.3.5 Time Display Mode

Users can set the time format to <12 HR> or <24 HR>. Use the UP / DOWN keys to change the format.

7.3.6 Daylight Saving Time Setup

This function is for people who live in certain regions to observe Daylight Saving Time. The menu displays as follows:

Daylight Saving Time Setup	
Daylight Saving Time	Off
DST Start	Apr 1st Sun 01:00
DST End	Oct Last Sun 01:00
DST Bias	60 Min

7.3.6.1 Daylight Saving Time

Select <On> to enable, or <Off> to disable the function. If the function is disabled, the DST Start / End time and DST Bias will be grayed out and cannot be accessed. If this function is enabled, the date/time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. "S" indicates summer time and "W" indicates winter time.

7.3.6.2 DST Start / End

These items are used to set duration of daylight saving time. Use LEFT / RIGHT to move the cursor to the previous or next field, UP / DOWN to change the settings.

7.3.6.3 DST Bias

This item allows users to set the amount of time to move forward from the standard time for daylight saving time. Available options are <30>, <60>, <90> and <120> minutes.

7.3.7 Network Time Protocol Setup

After time zone is set, the <Network Time Protocol Setup> option will be available.

Network Time Protocol Setup	
NTP Server	KB time.nist.gov
Automatically Time Sync	Off
Manually Time Sync	No

7.3.7.1 NTP Server

Enter this item to setup a feasible time server. The default time server is time.nist.gov. Users can change it to any other time server if desired. IP addresses of other time servers are listed below for reference.

129.6.15.28	129.6.15.29	132.163.4.101
132.163.4.102	132.163.4.103	128.138.140.44
192.43.244.18	131.107.1.10	69.25.96.13
206.246.118.250	208.184.49.9	64.125.78.85
207.200.81.113	64.236.96.53	68.216.79.113

7.3.7.2 Automatically Time Sync

Select <ON> and the time will be synced once an hour.

7.3.7.3 Manually Time Sync

Select <Yes> to sync the time immediately.

7.4 Unit Name

Users are allowed to assign a unit name, up to 11 characters, to the DVR100 Series.

Follow the steps below to edit the unit name.

- Select <Unit Name> from System Setup menu and press ENTER. A virtual keyboard displays as below.

!	@	#	*	-	_	+	=	,	.	/	Back	
1	2	3	4	5	6	7	8	9	0	Del		
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<		>>		Space		Cancel		OK				

- Use Direction keys to move the cursor to the wanted character.
- Press ENTER to add the character to the entry field (up to 11 characters).
- When the unit name is entered, move the cursor to <OK> and press ENTER to save the settings and exit.

7.5 Show Unit Name

This item enables the unit name of the DVR100 Series to be shown on the monitor. Select <Yes> to show or select <No> to hide.

7.6 User Management

The DVR provides the option to create up to seven sets of usernames and passwords with customized authority, excluding the preset "admin" account.

The menu is as the following.

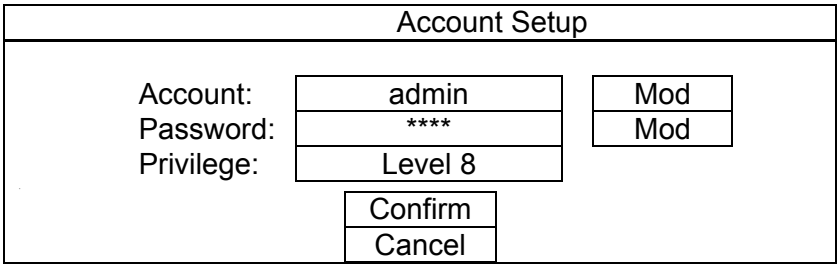
User Management	
Password Protection	On
Account Setup	
Authority Setup	
Load Default Setting	No

7.6.1 Password Protection

Select <On> to request for username and password for accessing functions listed in Authority Setup menu, or select <Off> to allow free access.

7.6.2 Account Setup

Setup customized username, password, and authority level in this menu. Press Direction keys and ENTER to select items. The privilege level ranks from levels 1~8, which level 8 has the highest authority. Alternatively, select <Disable> to stop using the account.



NOTE: The account name and privilege level of the preset "admin" account cannot be changed.

7.6.3 Authority Setup

Setup permitted authority level for accessing the functions listed in this menu. The functions include: Playback/Search, Covert Camera, Dome Control, Live Operation, Call Control, Export Data, Menu Access, System Setup, Monitor Setup, Camera Setup, Record Setup, Sequence Setup, Event Setup, Database Setup, Configuration and Shutdown. Press Direction keys and ENTER to select from items. In accordance with users' privilege level defined in <Account Setup>, the authority level here also ranks from levels 1~8, with level 8 as the highest level. Users will be able to access any function that is set to their equivalent level or lower. Alternatively, select <DISABLE> to allow free access.

Authority Setup	
Item	Authority
Playback/Search	DISABLE
Covert Camera	LEVLE8
Dome Control	DISABLE
Live Operation	DISABLE
Call Control	DISABLE
Export Data	DISABLE
Menu Access	LEVLE4
System Setup	LEVEL8

NOTE: The "Menu Access" cannot be set to <Disable>.

When the account does not have authority to access certain functions, an error message will be displayed on the screen.

7.6.4 Load Default Setting

This item is for restoring the default settings. Select <Yes> to load default setting or select <No> to exit.

7.7 Network Setup

The Network Setup menu allows users with proper privilege to configure the network by specifying the network related settings, such as IP address and Netmask, etc. Check with the network administrator and/or network service provider for more specific information. The menu is as the following. Items in this menu are described in the following sections.

Network Setup	
LAN Select	LAN
LAN Setup	
Trigger Port	80
Email Address	KB
SMTP Setup	
DDNS Setup	

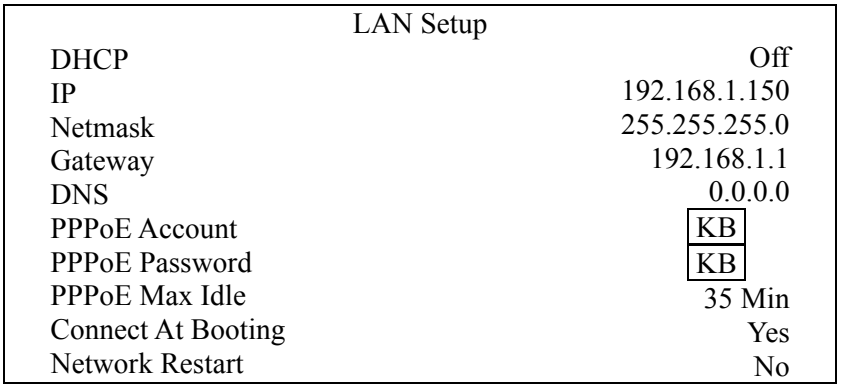
7.7.1 LAN Select

This item allows users to select the network type among <LAN>, <PPPoE>, and <None>. If the internet connection is a local area network communication, please select <LAN>. If the internet connection is a broadband medium, such as DSL Line or cable modem, please select <PPPoE>. PPPoE stands for Point-to-Point Protocol over Ethernet. It is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium.

If <None> is selected, then there is no need to set further LAN or PPPoE settings. Therefore, the second item <LAN Setup>will be inaccessible.

7.7.2 LAN Setup

The network related settings in the LAN Setup menu should be associated with the network service type. Select <LAN Setup> in Network Setup menu and press ENTER to set the parameters. The menu displays as follows.



7.7.2.1 DHCP

This item allows users to obtain a dynamic IP address from DHCP (Dynamic Host Configuration Protocol) server when the DVR boots up. When using DHCP, the settings are dynamic and will change every time the DVR power on or off, depending on the network's setup.

If the item is enabled (On), a dynamic IP will be assigned to **DVR100 Series**. In this case, users do not need to set a static IP and the Ethernet settings, including IP address, Netmask, Gateway, and DNS settings will be read-only.

If the DVR is using a permanent address, disable DHCP (Off) to manually set IP Address, Netmask, Gateway, and DNS. See the network system

administrators or IT personnel for appropriate values.

7.7.2.2 IP

This item is used to configure the IP (Internet Protocol) address of the DVR. The IP address is the identifier for the DVR on a TCP/IP LAN. Please note that to set a static IP address, DHCP must be set to <Off>.

7.7.2.3 Netmask

A netmask is a 32-bit mask used to divide an IP address into subnets and specify the networks available hosts. Its value is defined by the network administrator. It takes the form as ***.***.***.***, for example, 255.255.255.255.

This item allows users to enter the value of the Netmask for the DVR. Please note that to configure this item, DHCP must be set to <Off>.

7.7.2.4 Gateway

Gateway is a node on a network that serves as an entrance to another network. Users are allowed to specify the IP address of the gateway or router associated with this DVR. To configure this item, DHCP must be set to <Off>.

7.7.2.5 DNS

DNS is the abbreviation for "Domain Name Server", which is an Internet service that translates domain names into IP addresses. The advantage of using DNS is that domain names are easier to remember.

This item allows users to specify the IP address of the Domain Name System associated with the DVR. To configure this item, DHCP must be set to <Off>.

If the server is unavailable when using DHCP, the DVR will search for the network server and boots up more slowly. This network search continues until it times out.

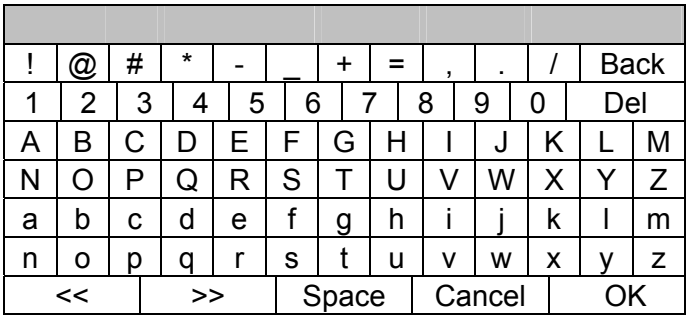
7.7.2.6 PPPoE Account

The item allows users to setup the PPPoE login username.

NOTE: For accessing the PPPoE settings, select <PPPoE> as the Network Type in Network Setup menu.

To setup the login username, follow the steps:

- Select <PPPoE Account> from LAN Setup menu and press ENTER. A virtual keyboard displays.



- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the setting and exit.

7.7.2.7 PPPoE Password

The item allows users to setup the PPPoE password. Follow these steps to setup the login password.

- Select <PPPoE Password> from LAN Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to select from characters.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the setting and exit.

7.7.2.8 PPPoE Max Idle

The item indicates the duration that the modem connection remains active if there is no acknowledgement from the remote PC. Users can select the idle time from 0 to 600 minutes.

7.7.2.9 Connect At Booting

The DVR is allowed to automatically connect to the internet when booting up. Select <Yes> to connect at booting, otherwise select <No>.

7.7.2.10 Network Restart

Network restart is required after network settings are changed. Select <Yes> to restart the network connection.

7.7.3 Trigger Port

To avoid the default service port (port 80) being jammed, this item enables users to change port 80 to another port.

To change the trigger port, move the cursor over <Trigger Port> and press ENTER, then adjust the setting by UP / DOWN keys.

7.7.4 Email Address

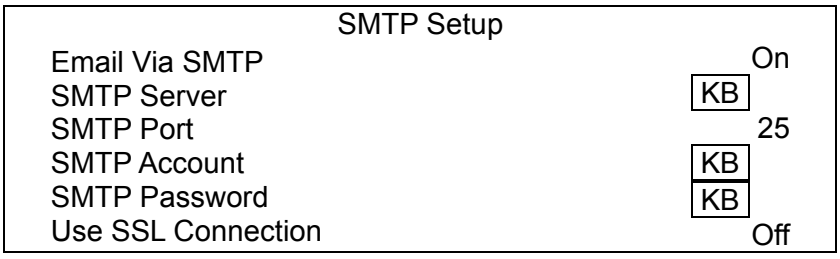
This item is used to edit the e-mail address where alarm event information will be sent. Follow these steps to setup the e-mail address.

- Select <Email Address> from Network Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting from characters.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

7.7.5 SMTP Setup

Simple Mail Transfer Protocol (SMTP), a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol that one or more recipients of a message are specified and the message text is transferred.

Select <SMTP Setup> from Network Setup menu and press ENTER; the menu displays as follows.



7.7.5.1 Email via SMTP

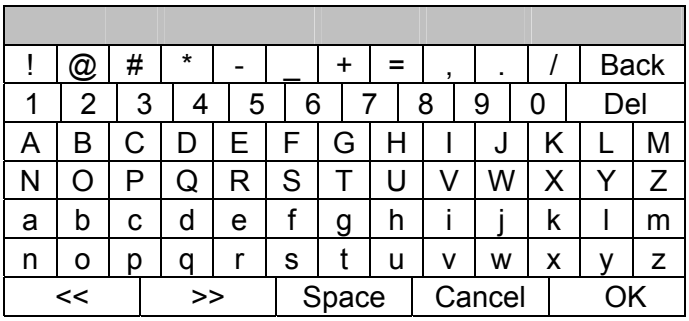
The item enables users to determine if the DVR sends e-mail via SMTP. Select <On> to send e-mail via SMTP using direction keys; if not, select <Off>.

7.7.5.2 SMTP Server

This item enables users to set the SMTP server. Contact the network service provider for more specific information.

Follow the steps to setup the SMTP Server.

- Select <SMTP Server> from SMTP Setup menu and press ENTER. A virtual keyboard displays.



- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

7.7.5.3 SMTP Port

The item is used to change SMTP port to another port, if necessary. SMTP usually is implemented to operate over Internet port 25.

To change the SMTP port, move the cursor to <SMTP Port> in SMTP Setup menu and press ENTER. Use UP / DOWN keys to change the values.

7.7.5.4 SMTP Account

The item allows users to setup the SMTP username. Follow these steps to setup the login username.

- Select <SMTP Account> from SMTP Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting from characters.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

7.7.5.5 SMTP Password

The item allows users to setup the SMTP password. Follow these steps to setup the password.

- Select <SMTP password> from SMTP Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting from characters.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

7.7.5.6 Use SSL Connection

SSL stands for Secure Sockets Layer, which provides communications security over the Internet. Select <On> for this item to enable SSL connection. Otherwise, select <Off> to disable SSL connection.

7.7.6 DDNS Setup

Dynamic Domain Name System (DDNS) allows a DNS name to be constantly synchronized with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated to a static domain name so others can connect to it by the domain name.

Once the setting is completed, the DDNS address will be:
http://hostname.ddns.iview-ddns.com
Fore example, if the chosen host name is "**H264DVR**", then the address will be:
http://**H264DVR**.ddns.iview-ddns.com

Select <DDNS Setup> from Network Setup and press ENTER. The menu displays as below.

DDNS Setup	
Enable DDNS	On
Host Name	XXXX_XXXXXX
DDNS Port	80
Submit/Update	No
ezDDNS	No

7.7.6.1 Enable DDNS

The item is used to enable or disable the Dynamic Domain Name Service. Select <On> to enable the service, or <Off> to disable.

7.7.6.2 Host Name

The item allows users to setup a domain name, which is used for entering the **DVR100 Series** through internet on the remote PC.

To setup the host name of the DVR, follow the steps.

- Select <Host Name> from DDNS Setup menu and press ENTER. A virtual keyboard displays as below.

!	@	#	*	-	_	+	=	,	.	/	Back
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<		>>		Space			Cancel			OK		

- Use Direction keys to select character.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

NOTE: Each **DVR100 Series** should have a unique host name.

7.7.6.3 DDNS Port

The item allows users to setup the port for DDNS. Press UP / DOWN Direction keys to change the port.

7.7.6.4 Submit/ Update

When the settings are finished, move the cursor to this item and select <Yes> to submit the settings.

NOTE: If more than one **DVR100 Series** has the same domain name, only the first one will be submitted successfully.

7.7.6.5 ezDDNS

ezDDNS enables the users to register for host name automatically. Press ENTER and select <Yes>. The following screen will be displayed:

```
ezDDNS Submit/update ok!
Host name is XXXX_XXXXXX
Press any key to return
```

NOTE: The DVR must be connected to the *Real IP address, or be assigned a specific port using **Port Forwarding technique.

*A "**Real IP**" is an IP address **that** is assigned to users by the ISP.

A "Virtual IP**" is an IP address assigned either **manually** or through DHCP. When users are assigned a Virtual IP, users must use **Port Forwarding** technique to assign a specific port to DVR.

7.8 RS485 Setup

This menu allows users to setup the parameters of the DVR's RS-485 communication port. From System Setup, select <RS485 Setup> and press ENTER. The following menu is displayed.

RS485 Setup	
Unit ID	224
Baud Rate	9600
Bits	8
Stop	1
Parity	None

7.8.1 Unit ID

This item is used to change the RS-485 ID address of the DVR. The ID is in the range of <1> to <255>.

7.8.2 Baud Rate

The Baud rate options for associated with the protocol are <2400>, <4800>, <9600>, <19200>, <38400>, and <57600>.

7.8.3 Bits

Users can specify the bits in a word associated with this protocol. The available options are <6>, <7> and <8> bits.

7.8.4 Stop

Users can specify the stop bit associated with this protocol. Options are <1> and <2> stop bits.

7.8.5 Parity

This item is used to specify the parity associated with this protocol. Options are <Odd>, <Even> and <None>.

7.9 Audio Output/Key Beep

Enter this menu to setup the audio output or key beep.

Audio Output/Key Beep	
Audio Output	OFF
Key Beep	On
Split Mode Audio	OFF

7.9.1 Audio Output

This item is for setting the audio output mode. The audio will be outputted when the monitor shows a chosen channel in full screen. The available options are as below.

<Live/PB>: Select this option to play the recording sounds of live image in live mode, and sounds of recorded video in playback mode respectively.

<Always Live>: Select this option to play live sounds in both live mode and playback mode.

<Off>: Select this option to disable the audio output function.

7.9.2 Key Beep

This item is used to enable or disable the key tone. Select <On> to enable the key tone, or <Off> to disable.

7.9.3 Split Mode Audio

This item allows users to select and output the audio of the selected channel while viewing multiple channels. Select <CH01> through <CH16> to output

the preferred audio, or select <OFF> to disable audio output in multiple window viewing modes.

8. Monitor Setup

The Monitor Setup menu allows users to adjust the quality of the displayed image. Select <Monitor Setup> from the Main menu and press ENTER. The following menu is displayed.

Monitor Setup	
Show Camera Title	Yes
OSD Transparency	0 %
VGA Resolution	1024*768
Show Color Bar	

8.1 Show Camera Title

This item allows users to choose whether to display the camera title on the screen or not. The default is <Yes>, which displays the camera titles with the video.

8.2 OSD Transparency

This item allows users to set the OSD menu transparent in a certain degree, so that users can see the live images while configuring the OSD settings. The options are <0%>, <15%>, <30%>, <45%>, <60%>, <75%>, and <90%>.

8.3 VGA Resolution

This item allows users to select appropriate VGA resolution for the VGA monitor connected to the DVR. The options are <1024*768>, <1280*1024> and <1080P>.

NOTE: If the selected VGA resolution is too high that the monitor cannot support, the message "No Signal" will be shown on screen. Then please press ESC on the front panel to restore the original setting.

8.4 Show Color Bar

Choose this item to display color bar pattern on the screen. The color bar helps to adjust the monitor hue, saturation, text color, and display options. Press ESC to exit the color bar pattern display and return to the OSD menu.

9. Camera Setup

The items in the Camera Setup menu enable users to set camera parameters, including camera title, dome protocol and ID for each connected camera.

9.1 Analog Camera

If the connected camera is an analog camera, please continue with this section. Items in this menu are described in the following subsections.

Camera Setup	
Analog Camera Select	CH01
Dome Protocol	None
Dome ID	0
Camera Title	KB CH1
Covert	No
Brightness	0
Contrast	0
Saturation	0
Hue	0

9.1.1 Analog Camera Select

This item is used to select a camera for setting the parameters. The related settings will follow the selected camera, such as dome protocol and camera title. Move the cursor to <Analog Camera Select> and press ENTER, then select a channel using UP / DOWN keys.

9.1.2 Dome Protocol

If the connected camera is a dome camera, select the communication protocol associated with the dome camera using ENTER and Direction keys. The available protocol includes <DSCP>, <AD422>, <Pelco D>, <Pelco P>, <Fastrax 2>, <JVC>, <Panasonic_C> and <Panasonic_N>. The default is set to <None>.

9.1.3 Dome ID

This item is used to assign an ID number to the selected dome camera. Note that ID number must match the ID address set by the dome camera.

9.1.4 Camera Title

This item allows the users to change the title of each connected camera. By default, the titles of cameras are numbered from 1 through 16 respectively. The title will be displayed on screen after the changes of the titles are set.

Follow these steps to enter a new title for a camera.

- Move the cursor to <Camera Title> and press ENTER. A virtual keyboard with alphanumeric characters is displayed as below.

!	@	#	*	-	_	+	=	,	.	/	Back
1	2	3	4	5	6	7	8	9	0	Del	
A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
<<		>>		Space		Cancel		OK			

- Use Direction keys to select character.
- Press ENTER to add the selected character to the entry field.
- When it's done, move the cursor to <OK> and press ENTER to save the settings and exit.

9.1.5 Covert

This function allows users to set the specific camera to be covert while the DVR continues to record video. Choosing <Yes> means to cover the selected camera; and <No> to remain the specific camera non-covert.

9.1.6 Brightness

Select this item to adjust the brightness of the camera. Use UP / DOWN keys to adjust the numeric value. The range of brightness values is from <-128> to <127>.

9.1.7 Contrast

Select this item to adjust the contrast of the camera. Use UP / DOWN keys to adjust the value. The range of contrast values is from <-128> to <127>.

9.1.8 Saturation

Select this item to adjust the color saturation of the camera using UP / DOWN keys. This value will be ignored on monochrome monitors. The range of saturation values is <-128> to <127>.

9.1.9 Hue

Select this item to adjust the hue of the camera. Use UP / DOWN keys to adjust the value. The range of hue values is from <-128> to <127>

10. Record Setup

The total record time of **DVR100 Series** will be effected by ***HDD capacity, recording rate (Picture per Second), image quality settings,*** and ***event settings.***

The greater the recording rate and the higher the quality setting, the shorter the recording duration. Most of the related factors can be set here in this submenu.

The Record Setup menu allows users to set recording quality, recording schedules, and other recording parameters. Login using account with proper privilege to access Record Setup menu. In the Main menu, move the cursor to <Record Setup> and press ENTER. The following menu is displayed.

Record Setup	
Record Mode Setup	
Schedule Setup	
Preset Config	Best Quality
Per Camera Config	
ezRecord Setup	
Data Lifetime Setup	
Circular Recording	ON
Audio Recording	ON
Purge Data	

10.1 Record Mode Setup

Enter this menu to setup record resolution. The relative record settings, such as preset configuration, will follow the record mode setting. The menu is displayed as the following.

Record Mode Setup	
Record Resolution	720*240
Record Format	H264
Max Rec. PPS	240
CBR/VBR	CBR

10.1.1 Record Resolution

Select resolution of the recorded video. If the recording is set to NTSC system, the selections are 720*480, 720*240, and 352*240. If the recording is set to PAL system, the selections are 720*576, 720*288, and 352*288.

10.1.2 Record Format

The video format will be H.264 compression. This item is read-only.

10.1.3 Max Rec. PPS

This item will be automatically changed according to record resolution.

10.1.4 CBR/VBR

This item allows users to select an encoding method for the unit.

CBR, standing for Constant Bit Rate, means a way to encode a file at a fixed rate. That also indicates a CBR file has consistent file size and quality.

VBR, standing for Variable Bit Rate, allocates an appropriate amount of data per second, depending on the complexity of the video file.

It's strongly suggested to use VBR encoding when reliable video quality is the top priority.

NOTE: Since a VBR file doesn't have a fixed size, the HDD space usage cannot be calculated and thus ezRecord function is not supported for VBR mode. Therefore, if ezRecord is selected as the preset record configuration, the option of this menu item will automatically be set as <CBR>.

10.2 Schedule Setup

This submenu is used to set the day and night time, or weekend recording schedule. The Day and Night schedules are for defining day time and night time; the Weekend schedule can be modified for weekends and holidays.

Select <Schedule Setup> from the Record Setup menu and press ENTER; the following menu is displayed.

Schedule Setup	
Day Time Start	AM 06:00
Day Time End	PM 06:00
Night Time Start	AM 06:00
Night Time End	PM 06:00
Weekend Schedule	On
Weekend Start	Fri PM 06:00

Weekend End	Mon AM 06:00

10.2.1 Day / Night Time Start / End

The Day/Night Start Time and End Time determines the duration of day/night recording time. Time is indicated in 1-minute increments. The time display format in this menu is based on the setting of <Time Display Mode> in <System Setup>.

10.2.2 Weekend Schedule

<Weekend Schedule> determines whether a weekend schedule is in effect. Choose <ON> to take effect the related weekend settings.

10.2.3 Weekend Start / End

<Weekend Start> indicates the specific day and time when weekend schedule should begin, for example, Fri PM 06:00. <Weekend End> indicates the specific day and time when weekend schedule should end, for example, Mon AM 06:00. Time is indicated in 1-minute increments.

Note that the value users have set indicates when the regular Day and Night scheduling ends, and Weekend recording begins.

10.3 Preset Record Configuration

The <Preset Config> is used to select the preset recording quality and frame rate. Different preset recording quality levels are offered for users to choose: <Best Quality>, <Standard>, <Extended Record>, <Event Only>, <ezRecord >, <512Kbps DSL>, <256Kbps DSL>, <128Kbps DSL>, and <OFF>. According to various Record modes, the preset configuration options for normal and event status are described in terms of relative recording rate PPS (Picture Per Second) and recording size for each channel in the table below.

These preset conditions <Best Quality>, <Standard>, <Extended Record>, <Event Only>, <ezRecord >, <512Kbps DSL>, <256Kbps DSL>, and <128Kbps DSL> override any other quality and rate settings. Refer to the table below for file sizes of different preset conditions. Note that <Event Only> and <ezRecord> are not included in the table because there are

further details for these two settings. <Event Only> will be described in <Event Setup> section. <ezRecord> will be explained in <ezRecord Setup> section.

NTSC	720 X 480 @ 120PPS	720 X 240 @ 240PPS	360 X 240 @ 480PPS
PAL	720 X 576 @ 100PPS	720 X 288 @ 200PPS	360 X 288 @ 400PPS
Best	22 KB/Pic	12 KB/Pic	6 KB/Pic
Standard	14 KB/Pic	8 KB/Pic	4 KB/Pic
Extended	6 KB/Pic	4 KB/Pic	2 KB/Pic
512Kbps DSL	4 KB/Pic		
256Kbps DSL	3 KB/Pic		
128Kbps DSL	2 KB/Pic		

NOTE: The total PPS is equally shared by all channels, which means, even if one channel has not been connected with a camera, the channel still reserves its share of PPS. However, if <ezRecord> is selected, the channels not connected to cameras will not be recorded. In other words, the total PPS will be shared by channels with cameras connected only.

10.4 Per Camera Config

This sub-menu is used to set the Day / Night / Weekend PPS and recording quality for each individual channel. <Preset Configuration> must be set to <OFF> in order to access these related settings. The menu is displayed as below in Record mode: 720×240@240PPS in NTSC / 720×288@200PPS in PAL.

Per Camera Config			
Cameral Select			CH01
	Day	**Night**	**Weekend**
Normal PPS	15	15	15
Normal Qlty	Mid	Mid	Mid
Event Max PPS	30	30	30
Event Qlty	Best	Best	Best
Event Act	Both	Both	Both

10.4.1 Camera Select

The item is used to select a desired channel for setting the parameters. Move the cursor to <Camera Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the selection.

10.4.2 Normal PPS

Normal PPS is used to set the recording rate for normal status.

Please note that the total normal PPS of all channels cannot exceed the maximum PPS of each Record mode. To increase one channel's PPS, others' may have to be reduced first. Event PPS is not restricted to this rule, since a smart event scheduler will handle to the total PPS with a correct weighting. For example, if channel 1 is set to event mode with 30PPS, the remaining 210 PPS will be equally distributed to other 15 channels, which mean each channel will be set to 14 PPS.

10.4.3 Normal Qlty

This item is used to set the picture size for normal status recording. The available options are: <Low>, <Fair>, <Mid>, <High> and <Best>.

10.4.4 Event Max PPS

<Event Max PPS> is used to set the event recording rate for Event status. Usually, the Event PPS is set equal to or greater than the Normal PPS. The setting is depending on users' application. If the Event PPS is set to <0>, the DVR will not record event video when alarms triggered.

10.4.5 Event Qlty

This item is used to set the picture size for event status recording. The available options are: <Low>, <Fair>, <Mid>, <High> and <Best>.

10.4.6 Event Active

Users are allowed to choose which alarm type needs to be recorded. The available options are <Alarm> (alarm events only), <Motion> (motion detection events only) and <Both> (alarm event + motion detection), and <None>. The default setting is <Both>, which includes Alarm and Motion events recording.

10.5 ezRecord Setup

This item aims to ease the complicated record settings, and to make the

setup much easier. Note that this item can be accessed only when <ezRecord> is selected as the option for <Preset Config>.

Select <ezRecord Setup> from <Record Setup> and press ENTER, the menu is displayed as below:

ezRecord Setup	
How Many Days To Record	2 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Average Normal PPS	3.75
Average Normal Quality	Best

Follow these steps to Setup ezRecord:

- Select <How Many Days To Record> and press ENTER, then press UP/DOWN to select a desired number of days. The average normal PPS & quality will be adjusted automatically. The maximum recording days depends on the storage size of the HDD. In other words, the larger the storage size, the more days the DVR can record.
- Move to <Daytime Record> and press ENTER. This item is for users to select whether the DVR will record during daytime. If yes, use UP/DOWN to select <Yes> to enable daytime recording; or select <No> to disable.
- Repeat the same procedures for <Night Record> and <Weekend Record>, respectively. Note that <Weekend Record> will be inaccessible if <Weekend Schedule> in <Schedule Setup> is set to <OFF>.
- Select <Average Normal PPS> and press ENTER, then press UP/DOWN to choose a desired number of PPS. The <How Many Days To Record> will be computed automatically.
- Select <Average Normal Quality> and press ENTER, then press UP/DOWN to select a desired quality. The <How Many Days To Record> will be computed automatically.

NOTE: The current number of connected cameras will affect the recording quality automatically calculated by the <ezRecord Setup>. Therefore, when there are cameras disconnected or connected, the <ezRecord Setup> should be reset.

10.6 Data Lifetime Setup

Data Lifetime indicates the duration that a video is saved and recallable in the HDD. Only those video recorded within Data Lifetime can be displayed

on the screen and played back. The video exceeded Data Lifetime will be hidden and cannot be retrieved for playback.

Data Lifetime Setup	
Data Lifetime Mode	General
Data Lifetime	0 Days
Data Lifetime By Day	
Data Lifetime By Channel	

NOTE: If users want to playback a video which is beyond the data lifetime, please extend the duration till the recording data/time of the video is included.

10.6.1 Data Lifetime Mode

This item allows the user to choose preferred data lifetime mode. There are three types of data lifetime mode: General, By Day, and By Channel. When a specific mode is selected, the other two will be grayed out and cannot be accessed.

10.6.2 Data Lifetime

When data lifetime mode is set as <General>, this item will be accessible. Press ENTER to select this item and press UP / DOWN keys to set the data lifetime. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

10.6.3 Data Lifetime By Day

When data lifetime mode is set as <By Day>, this item will be accessible. Enter this menu and users can setup data lifetime of each weekday independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

10.6.4 Data Lifetime By Channel

When data lifetime mode is set as <By Channel>, this item will be accessible. Enter this menu and users can setup data lifetime of each channel independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

10.7 Circular Recording

Users can choose to record video in circular mode or in linear mode. If circular mode (set to <ON>) is selected, the DVR will store new video data to overwrite the oldest recorded video. If linear mode (set to <OFF>) is selected instead, the DVR will stop recording when HDD capacity is full. The percentage of HDD usage will be displayed as icons in the status bar. Furthermore, an alert icon will show up in the status bar when HDD usage reached 98%. In the mean time, an internal buzzer will start beeping.

From the Record Setup menu, move the cursor to <Circular Recording> and press ENTER, then select <ON> / <OFF> using UP / DOWN keys.

10.8 Audio Recording

This item allows users to enable / disable Audio recording function of the DVR. When it's set to <ON>, audio input is recorded and saved with the video. When it's set to <OFF>, audio is ignored.

10.9 Purge Data

This item is used to delete the Normal or Event videos. In <Record Setup> menu, move the cursor to <Purge Data> and press ENTER. The <Purge Data> menu is shown as below.

Purge Data	
Purge All Data	No
Purge All Event Data	No
Purge Event Before	2000/01/01
Start To Purge	No

10.9.1 Purge All Data

This item is used to delete all videos from the database. Use UP / DOWN keys to select <Yes> and start the deletion by setting <Start to Purge> to <Yes>.

10.9.2 Purge All Event Data

This item is used to delete all event videos from the database. Use UP / DOWN keys to select <Yes> and start the deletion by setting <Start to Purge> to <Yes>.

10.9.3 Purge Event Before

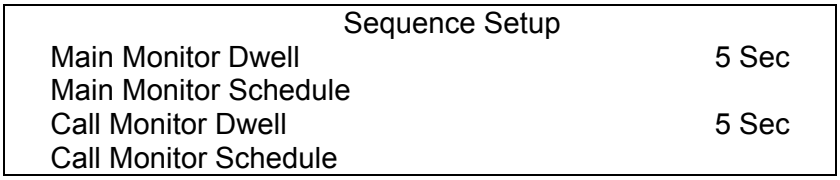
This item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value. Start the deletion by setting <Start to Purge> to <Yes>.

10.9.4 Start To Purge

After selected the videos to be deleted or chosen the date for deletion, set this item to <Yes> to start the deletion, or select <No> to cancel.

11. Sequence Setup

The Sequence Setup menu allows users to set the camera sequence schedule and dwell time for main and call monitor. Select <Sequence Setup> in main menu and press ENTER. The menu displays as follows.

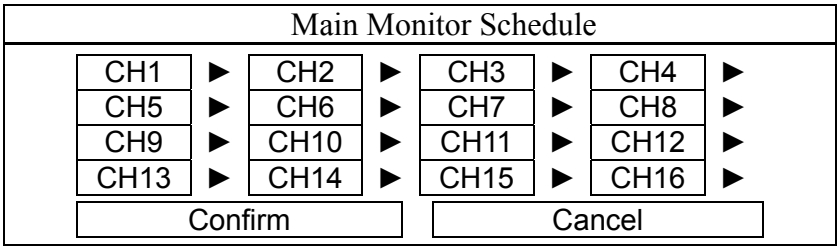


11.1 Main / Call Monitor Dwell

The main/ call monitor can be set to display full screen video of all installed cameras in sequence. This item is used to set the Main/ Call Monitor dwell time, which is the duration of time elapsed before switching to the next channel. The dwell time is in the range of 1 to 120 seconds.

11.2 Main / Call Monitor Schedule

This item is used to set displaying sequence of connected cameras to be displayed on the main/ call monitor in full-screen format. Move the cursor to <Main Monitor Schedule> and press ENTER. The menu is displayed as follows.



Follow these steps to set a sequence:

- Press LEFT / RIGHT direction keys to move to previous / next sequence order.
- Press UP / DOWN keys to assign a channel to that order in the sequence.
- Continue the steps until the sequence is completed.
- To setup a sequence with less than the maximum number of entries, select <Circular> to end the sequence.

The maximum number of entries in a sequence equals to the number of

channels. The sequence can include a specific camera or cameras multiple times.

12. Event Setup

This menu allows users to determine **DVR100 Series** behavior in response to alarm events. In the Main menu, move the cursor to <Event Setup> and press ENTER. The following menu is displayed. Items in the Event Setup menu are described in the following subsections.

Event Setup	
Internal Buzzer	ON
Event Icon	ON
Email Notice	OFF
Email Attachment	OFF
Alert Notification Setup	
Event Full Screen	None
Event Duration	20 Sec
Per Channel Config	

12.1 Internal Buzzer

This item allows users to enable / disable internal buzzer of the **DVR100 Series**. If <ON> is selected, the buzzer is activated in response to alarm events. If <OFF> is selected, the buzzer is not activated.

12.2 Event Icon

This item enables (ON) / disables (OFF) the display of event icons on the monitor when alarm events occur. The event icons are represented by a character according to the event types respectively. Refer to the following table for association of event icons and event types.

Event Icon	Event Type
A	Alarm in event
M	Motion detection event
L	Video loss event

12.3 Email Notice

The item enables (ON) / disables (OFF) the Email notification of an event. When an alarm event is triggered and <Email Notice> is enabled, an e-mail concerning the alarm event will be sent.

NOTE: In order to send an event notification e-mail successfully, ensure that the DVR is connecting to the internet.

12.4 Email Attachment

The function allows the DVR to send out a brief AVI video regarding the event. The number of the attached AVI video will be equivalent to the number of cameras connected to the DVR. For example, if the DVR has been connected with 8 cameras, then 8 videos will be attached to the notice email. The total size of the video will be about 2 MB.

Select <ON> to enable this function; or <OFF> to disable it.

NOTE: The video clips of the Email Attachment will ONLY be in *.avi format. Please download the Divx Player from www.divx.com to play the *.avi files.

12.5 Alert Notification Setup

This function allows users to send alert notifications to the CMS program which had been installed to the computer. For detailed setup instruction, please refer to the CMS user's manual.

Alert Notification Setup	
Alert Configuration Set	1
Alert Notification	OFF
Alert IP	0.0.0.0
Alert Port	9999
Alive Interval	120 Sec

12.5.1 Alert Configuration Set

<Alert Configuration Set> provides 3 combinations of Alert Notification, IP, and Port.

12.5.2 Alert Notification

4 options are included in this item; <OFF>, <Event>, <Alive>, and <Both>.

<**OFF**>: The Alert Notification is turned off.
<**Event**>: When the alarm is triggered, the DVR will send an alert message to the CMS.
<**Alive**>: The DVR will send an alive message to the CMS every *N* second just to show users that the connection between the DVR and CMS is in effect. The time interval *N* can be adjusted in <Alive Interval>.

<**Both**>: This enables the DVR to send both Event and Alive alert messages to the CMS.

12.5.3 Alert IP

The Alert IP must match the IP address of the computer.

12.5.4 Alert Port

The ports for DVR and the CMS Alert MUST be the same.

12.5.5 Alive Interval

Users can define the time interval (1 to 255 seconds) between each alive message. This item will not be accessible if the alert notification menu is set to <OFF> or <Event>.

12.6 Event Full Screen

This function allows the DVR to display the alarm channel in full screen size when an alarm is triggered.

Select <None> to disable this function, <Main> to display the alarm channel on Main Monitor when an alarm is triggered, <Call> to display the alarm channel on Call Monitor, or select <Both> to display the alarm channel on both Main Monitor and Call Monitor.

12.7 Event Duration

This item determines the duration of the buzzer and Alarm Out relay function after an alarm is triggered. The available event duration range is from 5 second to 999 seconds.

12.8 Per Channel Config

This menu is used to configure the <Video Loss Detect>, <Motion Detect>, <Alarm In> and <Alarm Out> settings for each channel. The menu is displayed as below.

Per Channel Config	
Channel Select	CH01

Video Loss Detect	OFF
Motion Detect	OFF
Detection Config	
Alarm In	OFF
Alarm Out	ON

12.8.1 Channel Select

The item is used to select a desired channel for setting the parameters. Move the cursor to <Channel Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the selection.

12.8.2 Video Loss Detect

This item allows users to enable or disable Video Loss as an alarm event. Select <ON> to enable Video Loss alarm events, or <OFF> to disable.

12.8.3 Motion Detect

This item allows users to enable or disable motion detection function of **DVR100 Series**. Select <ON> to enable Motion Detect alarm events, or <OFF> to disable. If motion detection function is enabled, it is required to define motion detection parameters such as detection area and sensitivity settings in <Detection Config>.

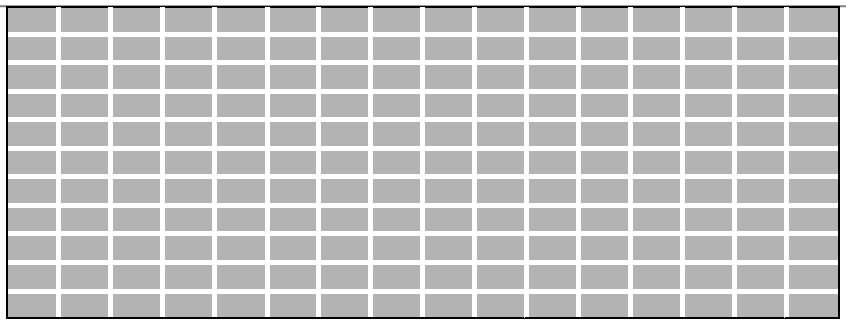
12.8.4 Detection Configuration

If motion detection function is enabled, it is required to define the motion detection parameters such as detection area and sensitivity settings. Select a channel for setting the parameters, move the cursor to <Detection Config> and press ENTER. The Detection Configuration menu displays as follows.

Detection Config	
Detected Area Setup	
Sensitivity	60 %
Block Threshold	4

12.8.4.1 Detected Area Setup

After selected this item, the detected area is displayed as follows. The detection area consists of 192 (16×12) detection grids.



Use the Direction keys to move the cursor and press ENTER to select or de-select a grid. Press MODE to select all of the grids for detection; press MODE again to de-select all of the grids.

12.8.4.2 Sensitivity

This item is used to set the sensitivity of detection grids for the camera. A greater value indicates more sensitive motion detection. A motion alarm will be triggered once the amount of motion detected exceeds the Threshold value.

Move the cursor to <Sensitivity> and press ENTER, and then use UP/ DOWN keys to adjust the value. The value is increased by 4% increment.

12.8.4.3 Block Threshold

<Block Threshold> indicates the motion alarm triggered level; select from <1> to <16>. Selecting <1> means the DVR will trigger the alarm when one grid is detected; and selecting <16> means the DVR will trigger the alarm when 16 grids are detected. Move the cursor to <Block Threshold> and press ENTER, and then use UP / DOWN keys to adjust the value.

12.8.5 Alarm In

This item allows users to enable/ disable alarm input detection. According to users' application, select <N/O> (Normal Open) or <N/C> (Normal Close) to enable the alarm input detection, or select <OFF> to disable the detection.

If <N/C> is selected without installing any device, an alarm will be triggered and the Event Icon will always display on the monitor until the selection is changed to <N/O> or <OFF>, or when a device is installed.

12.8.6 Alarm Out

This item allows users to enable/ disable the alarm output on the selected

channel to activate the relay. The signal can be a light or siren to caution an alarm event. Select <ON> to enable the alarm output, or <OFF> to disable.

13. Database Setup

The menu displays information of internal and external HDDs. In the main menu, select <Database Setup> and press ENTER. The following menu is displayed.

Database Setup	
Total Size	xxxGB
Free Size	xxxGB (Circular)
Avail. Rec Time	Infinite
Internal Disks	
Repair On Power Loss	On

NOTE: If the detection of HDDs fails, the message "HDD fail" will be displayed.

13.1 Total / Free Size

Total Size shows the total storage capacity of HDDs that have been added to the database. Free Size indicates free storage space available for recording in the database. "Circular" will be shown if the DVR is set to record in circular mode. Both of them are read-only.

13.2 Avail. Rec Time

The Avail. Rec Time indicates the available time duration for recording. If the DVR is set to record in circular mode, this item will show "Infinite". This information is read-only as well.

NOTE: If VBR mode is selected in <Record Mode Setup>, the available time will not be able to be calculated. Thus there will be no value displayed for this item.

13.3 Internal Disks

Select <Internal Disks> to see information of the built-in HDDs. The menu is displayed as below.

Internal Disks			
Device Name	Temp.	Active	Action
#: xxxxxxx-xxxxxx	38	Yes	None

The information of the built-in HDDs will be listed by model name and status.

If no storage device is connected to the DVR, the message "No Available Items!" will be displayed.

NOTE: If the file system of the internal HDDs is not compatible for the DVR, the system will format the internal HDDs automatically without notice.

<Device Name> and <Temp.> are read-only. For internal disks, the number in front of the device name represents the SATA port that the HDD is connected to. If no storage device can be found, the message "No available items!" will be displayed.

Active

This item indicates if the HDD is added to the database. <Yes> means the HDD has been added to the database.

Action

This item allows users to add the HDD to the **database** or remove it from the database. The options are <None> (no action), <Add> (add the selected HDD to the database), <Remove> (remove the selected HDD from the database), <Format> (format the selected HDD).

NOTE: Before disconnecting an external HDD from the DVR, **ALWAYS** remember to remove it from the database first.

13.4 Repair On Power Loss

This item enables the DVR to do auto HDD scan after powered on, if the DVR previously experienced unexpected power loss or was not shutdown properly. If auto scan failed, formatting of HDD is required. The preset is <On>. This helps to secure the data saved in the HDD. Therefore, it is suggested to keep this function enabled.

NOTE: If password protection is enabled, login with authorized account will be prompted before HDD format. Regarding details of HDD scan, please refer to the User's Manual for more information.

14. Configuration

The Configuration menu can be used to restore the default factory settings, import/export configuration, and view/export system log. Select <Configuration> from the main menu and press ENTER. The following menu is displayed. Items in this menu are described in the following subsections.

Configuration	
Load Factory Default	No
Import Config	
Export Config	
System Log	
Operation Log	Off

14.1 Load Factory Default

This item is used to load the factory default setting. Select <Yes> to restore the factory default setting from the read-only memory, or select <No> to cancel.

14.2 Import Configuration

This item allows users to load a DVR configuration that was saved in an external drive. To import a configuration that was previously exported, make sure the device with the saved configuration is connected to the DVR. Select <Import Config> from the Configuration menu and press ENTER. The following menu is displayed.

Import Config	
Config Name	Select
xxxx-xxxx	No
xxx-xx	No

Press UP/ DOWN to select one of the available configuration files, and choose <Yes> to start importing the configuration.

NOTE: If the record mode of the imported configuration is different from the DVR's current configuration, a warning message will be shown and the system will reboot.

NOTE: DO NOT remove the external device before the DVR completely reboots, otherwise it will be formatted.

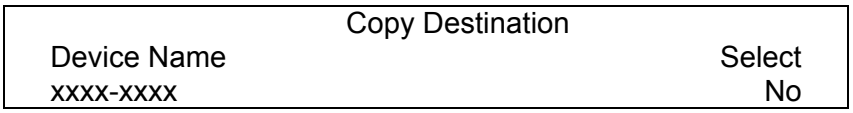
14.3 Export Configuration

Users are allowed to save a DVR configuration by exporting it to an external drive, such as an USB Flash Drive. Before exporting the configuration, make sure the device in which the configuration will be saved is attached to the DVR appropriately. Select <Export Config> from the Configuration menu and press ENTER. The following menu is displayed.

Items in this menu are described in the following sections.

14.3.1 Copy Destination

Enter this item to list available destinations (external storage devices) where the configuration can be exported. Press UP/ DOWN to select a destination. Please note that saving a different configuration to the same destination with the same file name will overwrite the previous configuration file without warning.



NOTE: It is not allowed to select the built-in DVD+RW as a copy destination.

14.3.2 Configuration Name

This item allows users to assign a name to the exported configuration file. Use the virtual keyboard to enter the configuration file name. Note that the file name can only contain up to 15 characters, with no spaces.

14.3.3 Begin Export

Select <Yes> to begin exporting the configuration file, or select <No> to exit.

NOTE: It is strongly recommended to export configuration before upgrading the DVR system. Also, backup the configuration routinely is

recommended as well, just in case for unexpected situation.

14.4 System Log

Select <System Log> and a list of system logs will be displayed on the screen. Users can export the system log as a data file to an external storage device. Connect a USB storage device and select <Export> to export the system log file to the USB storage device. Alternatively, press COPY can also export the system log file. Note that in the mean time, a digital signature file will also be exported.

14.5 Operation Log

Set <Operation Log> to <On> and operation logs will start to be recorded in the system log. Alternatively, set to <Off> and operation logs will not be part of the system log.

15. Export

The Export menu enables users to export recorded video with or without digital signature to a USB storage device, or to a DVD+RW. Make sure an external storage device is available and connected to the appropriate port for video export.

When the recorded video is exported with digital signature, the output will be four files, including *.gpg, *.avi (*.drv), *.sig and readme.txt. Exporting a video whose size is 1GB with digital signature may take about 30 minutes.

NOTE: The inserted DVD+RW will be ejected when its capacity is 99% full.

Export	
Select Device	
Select Ch:	Ch1 Ch2 Ch3 Ch4 Ch5 Ch6 All
From:	2011/02/19 AM 07:50:05
To:	2011/02/28 PM 03:09:18
Select Events	
Data Type	Normal
Export Format	DRV
Digital Signature	No
Erase Disc	No
Begin Export	No

NOTE: The system log will keep records of all video exportations, including duration, start time, and end time.

15.1 Select Device

The available external devices for exporting video will be listed by name and free size in Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
xxx-xxx-x-x-xx	256 MB	No
xx-xxx-xx-xxxx	1.5 GB	No

Device Name

The item shows the name of the available devices.

Available

The item shows the free space of the available devices.

Sel

Set this item to <Yes> to set the selected device as the exporting destination.

NOTE: The item <Erase Disk> from Video Export menu will be grayed out when the selected device is not a DVD+RW or when the device is not selected yet.

15.2 Select Channel

The item is used to select channels for export. Move the cursor to the desired channel using LEFT / RIGHT keys, select or de-select a channel by pressing ENTER.

15.3 From / To Time

These items are used to set the time which data export begins and ends. Move the cursor using Direction keys, and press ENTER to select the date / time items; adjust the selected date and time value by UP / DOWN keys.

NOTE: When the Start / End Time are set, remember to select the exporting Data Type.

15.4 Select Events

Select the item to display the event list for exporting event video. Move the cursor to scroll the event list and press ENTER to select the events users want to export.

NOTE: Users will not be allowed to access <Select Events> if <Data Type> is set to <Normal>.

15.5 Data Type

This item is used to select exporting video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).

NOTE: If users want to export selected event video using the item <Select Event>, users have to set <From> and <To> to the same day and time. Otherwise, not only the selected event video will be exported to the

selected destination, but also other event videos recorded during the period between <From> and <To>.

15.6 Export Format

This item is for selecting exporting video format. The options are <DRV>, <AVI>, and <Original>. The DRV and AVI files are compressed video files while the original files are raw data of the unit's recorded video.

The DRV and original files can only be played back with the remote monitoring software and DVR**Player**, and multiple cameras video can be played back from one file. The AVI files can be played back with Windows Media Player. Note that if multiple channels are exported for AVI files, each channel is exported to a separate file.

15.7 Digital Signature

The Digital Signature function enables users to export video clip with the unit's unique signature key. It aims to authenticate that a video clip was exported from the unit and it has not been modified. Users can export video clips with or without a digital signature file (*.sig). Set the item to <Yes> to export with the signature file, or <No> to export without it.

Make sure that an external storage device, such as a USB Hard Drive or USB ThumbDrive, is available and connected to the appropriate port for export.

For more information on verifying digital signature, see **Appendix C: DVR Player**.

15.8 Erase Disc

This function is used to remove information found on a DVD+RW disk prior to writing new information. Select <Yes> and press ENTER. The data on the DVD+RW will be erased when the exporting process begins.

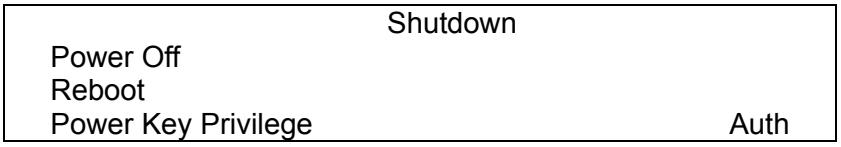
NOTE: This item will be grayed out when the selected device is not a DVD recorder or when the device is not selected yet.

15.9 Begin Export

Select <Yes> and press ENTER to start exporting.

16. Shutdown

This item is used to shut down or reboot the DVR. If the **DVR100 Series** must be shut down for any reason, please follow the proper shut down and power on procedures to avoid any potential damages to the DVR.



16.1 Power Off

Press ENTER on this item to shut down the DVR. Do not remove the power source during shutdown until the message "You can safely turn off DVR now!" displays.

16.2 Reboot

Press ENTER on this item to reboot the DVR. The color bar and system checking information are displayed on the monitor until the DVR is completely restarted.

16.3 Power Key Privilege

According to the setting of this item, users are able to quick shutdown the DVR via long pressing the Power Key. This item defines the action of the power key. The options are <Auth>, <Confirm>, <Direct>, and <Disable>. The following explains each option.

<Auth>: This will ask users to login with an authorized account, when Password Protection function is enabled. If Password Protection function is disabled, the action will be the same as the next option <Confirm>.

<Confirm>: When this option is selected, a confirmation message will be shown after pressing and holding the Power Key. Users can confirm or cancel the quick shutdown function.

<Direct>: For users who wish to enable the quick shutdown function without any confirmation or login process, select this option and the DVR will automatically shutdown after pressing and holding the Power Key.

<Disable>: Select this option to disable the quick shutdown function.

Appendix A: D-Sub Lead Instruction

4CH and 8CH models:

Pin	Definition	Wire	Pin	Definition	Wire
1	Alarm Out Open	Brown	14	Alarm Out Close	Orange
2	Alarm Out COM	Red	15	RS485 D−	Green
3	RS485 D+	Black	16	Alarm In 2	Blue
4	Alarm In 1	Brown	17	Alarm In 4	Purple
5	Alarm In 3	Red	18	Alarm In 6 (8CH only)	Gray
6	Alarm In 5 (8CH only)	Orange	19	Alarm In 8 (8CH only)	White
7	Alarm In 7 (8CH only)	Yellow	20	Audio 2	RCA
8	Audio 1	RCA	21	Audio 4	RCA
9	Audio 3	RCA	22	Audio 6 (8CH only)	RCA
10	Audio 5 (8CH only)	RCA	23	Audio 8 (8CH only)	RCA
11	Audio 7 (8CH only)	RCA	24	GND	Black
12	GND	Black	25	GND	Black
13	GND	Black			

NOTE:

1. Alarm Out Open, Alarm Out COM, and Alarm Out Close have labels on the wires.
2. Audio wires are with RCA connectors and number labels.
3. Pins for GND (12, 13, 24, and 25) are combined in one black wire with a label on it.

16CH models:

Pin	Definition		Wire	Pin	Definition		Wire
1	Alarm Out Open		White	14	Alarm Out Close		Gray
2	Alarm Out COM		Brown	15	Reserved		−
3	RS485 D+		Red	16	Reserved		−
4	RS485 D−		Orange	17	Reserved		−
5	Reserved		−	18	Alarm In 9	**C**	Yellow
6	Alarm In 1	**A**	Yellow	19	Alarm In 10	**C**	Green
7	Alarm In 2	**A**	Green	20	Alarm In 11	**C**	Blue
8	Alarm In 3	**A**	Blue	21	Alarm In 12	**C**	Purple
9	Alarm In 4	**A**	Purple	22	Alarm In 13	**D**	Yellow
10	Alarm In 5	**B**	Yellow	23	Alarm In 14	**D**	Green
11	Alarm In 6	**B**	Green	24	Alarm In 15	**D**	Blue
12	Alarm In 7	**B**	Blue	25	Alarm In 16	**D**	Purple
13	Alarm In 8	**B**	Purple				

NOTE:

1. Pins 6~9 are bundled as Group A.

2. Pins 10~13 are bundled as Group B.
3. Pins 18~21 are bundled as Group C.
4. Pins 22~25 are bundled as Group D.

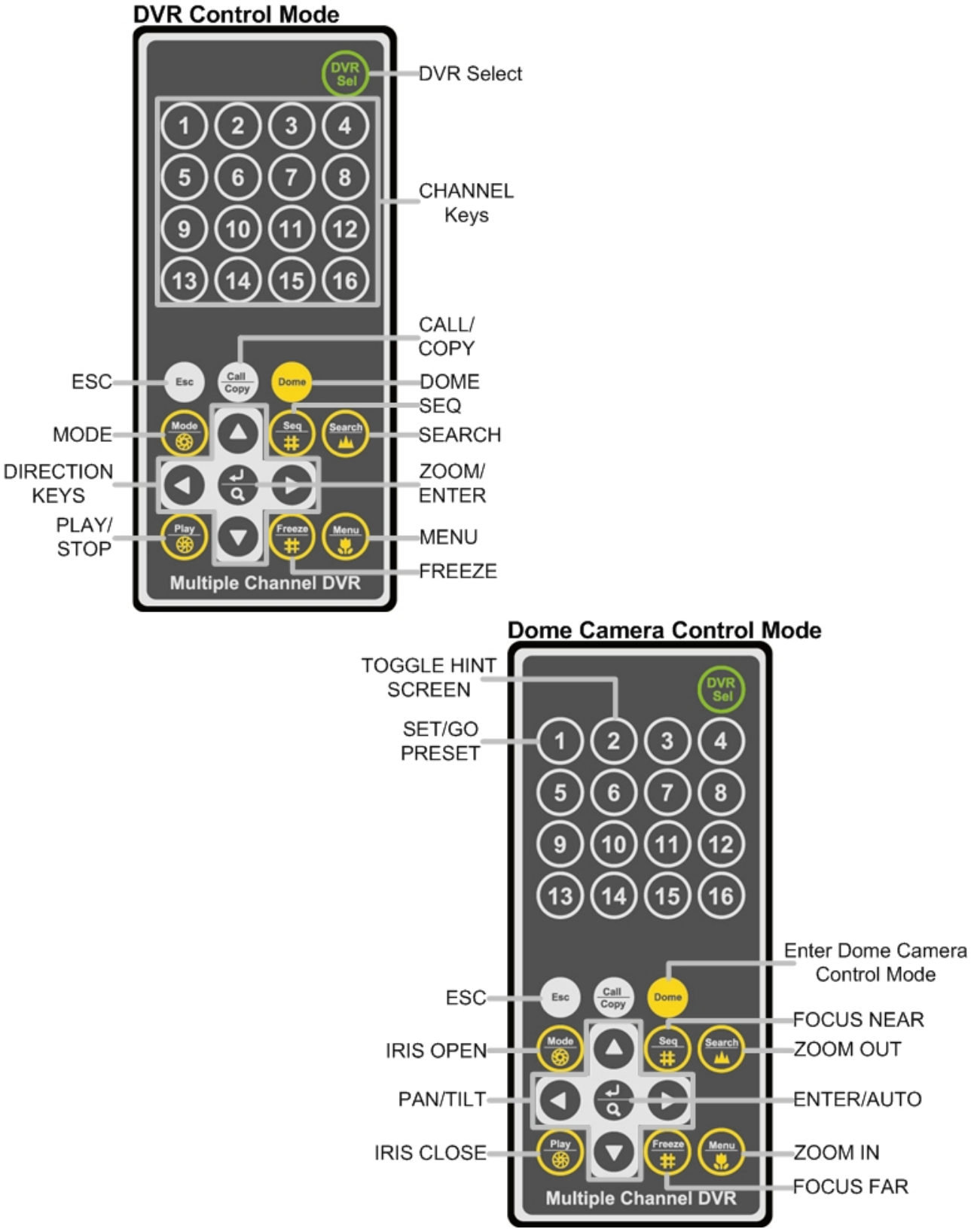
Appendix B: Recommended HDDs

Refer to the following list for some recommended HDDs to be used in the DVR.

Brand	Model Name	Model Number	Size
Seagate	Pipeline HD.2	ST3500312CS	500G
	Barracuda ES.2	ST3500320NS	500G
	Barracuda 7200.11	ST3500320AS	500G
	Barracuda 7200.12	ST3500418AS	500G
	Barracuda 7200.11	ST3750330AS	750G
	Barracuda 7200.12	ST3750528AS	750G
	Barracuda 7200.11	ST31000340AS	1000G
	Barracuda 7200.12	ST31000528AS	1000G
	Barracuda 7200.11	ST31500341AS	1500G
HITACHI	DeskStar	HDP725032GLA360	320G
	DeskStar	HDP725050GLA360	500G
	CinemaStar	HCP725050GLA380	500G
	CinemaStar	HCS721010KLA330	1000G
Maxtor	DiamondMax 22	STM3500320AS	500G

Appendix C: Remote Controller

The operational function keys on the remote control are listed as below figure:



The keys of the remote control function as the keys of the front panel of the DVR. The only difference between the remote control and the front panel keys is the "DVR SEL" key. The DVR Selection key is used to switch control between each DVR.

The remote control can be used to control up to 16 DVRs. To setup the remote control, the first thing is to assign a unique DVR Unit ID to each DVR.

Use the front panel of the DVR, and follow this path to change the DVR Unit ID, <Main Menu> → <System Setup> → <RS485 Setup> → <Unit ID>. Change the DVR Unit ID to any number between 224 and 239, and exit the menu.

The ID Table is listed below for reference.

DVR Unit ID	224	225	226	227	228	229	230	231
Remote Control #	1	2	3	4	5	6	7	8

DVR Unit ID	232	233	234	235	236	237	238	239
Remote Control #	9	10	11	12	13	14	15	16

After the DVR Unit ID is changed, setup the "DVR SEL" of the remote control. Press "DVR SEL", and then press the Remote Control # immediately to select the DVR. For example, assuming the DVR Unit ID is set to 225, press "DVR SEL" and then press "2" immediately. Now, the remote control will only be able to control the specified DVR. Press "DVR SEL", and then press the Remote control # to switch between DVRs.

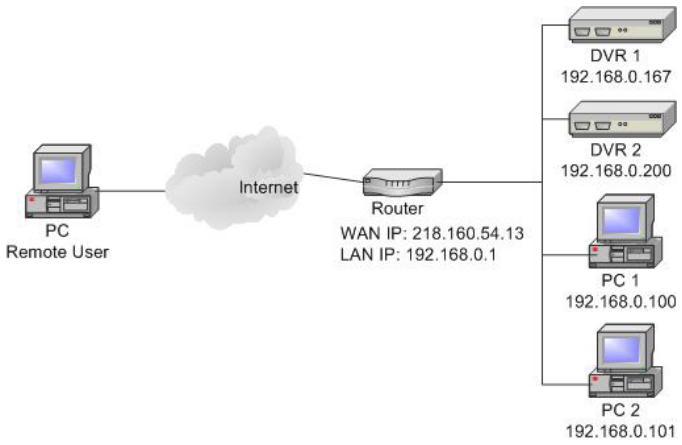
To exit the single DVR Control mode, press "DVR SEL", and then press "ESC" to do so.

Appendix D: Setup a DVR behind a Router

This appendix describes how to set up a router if the DVR connects to the internet via a router.

To properly operate a web server, e.g. a DVR, users have to set up both the IP and port of the DVR, which are essential for data and command transmission. The port setting is adjustable in OSD setup menu of the DVR and only one port is needed to do remote operation. Typically and by the default, the DVR operates on port 80, which is well known as the http port. Please make sure that port 80 is not blocked by the ISP. Otherwise, a different available port shall be reset and the setting of the DVR shall be changed.

In case a router or sometimes a DSL modem is in place, the real IP is now assigned to the router instead of the DVR. The DVR is located behind the wall (router) and operates on virtual IP. In most cases, virtual IP starts with 192.168.x.x. The router has two IP: one is real IP (WAN IP); the other is virtual IP (LAN IP). The virtual IP would be 192.168.x.1. When the remote users want to operate the DVR, they will have to send command to the real IP, i.e. the router. Then the router has to map (forward) the command to the DVR. Thus, it is required to set up the router for port mapping (forwarding) before images from the DVR can be remotely viewed on a PC.

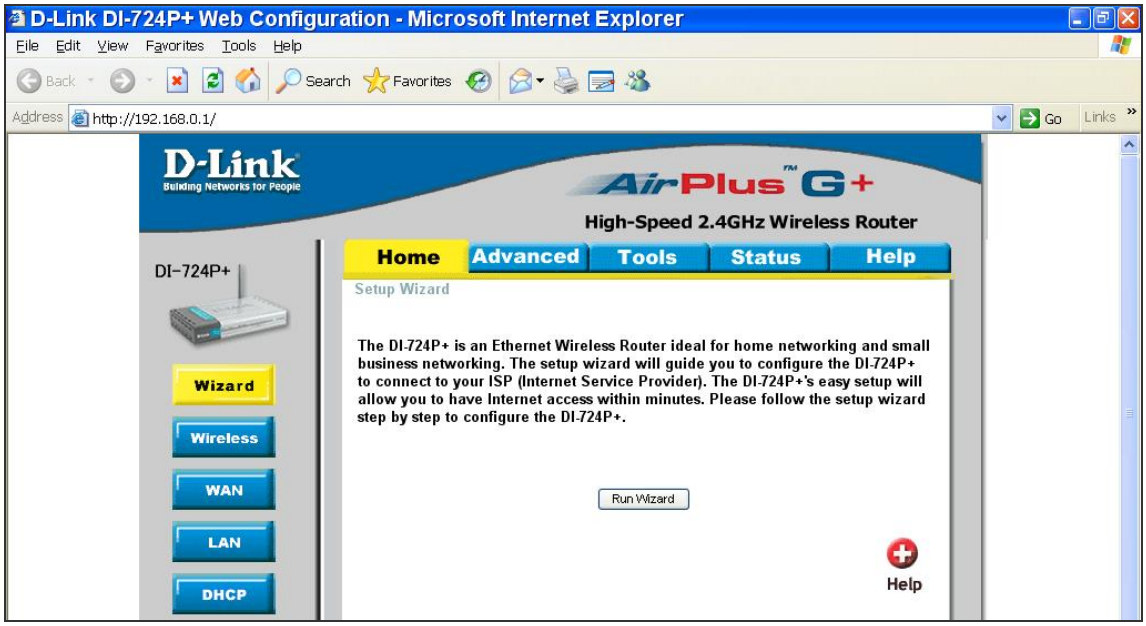


See the router manufacturer's websites for more instructions on port mapping.

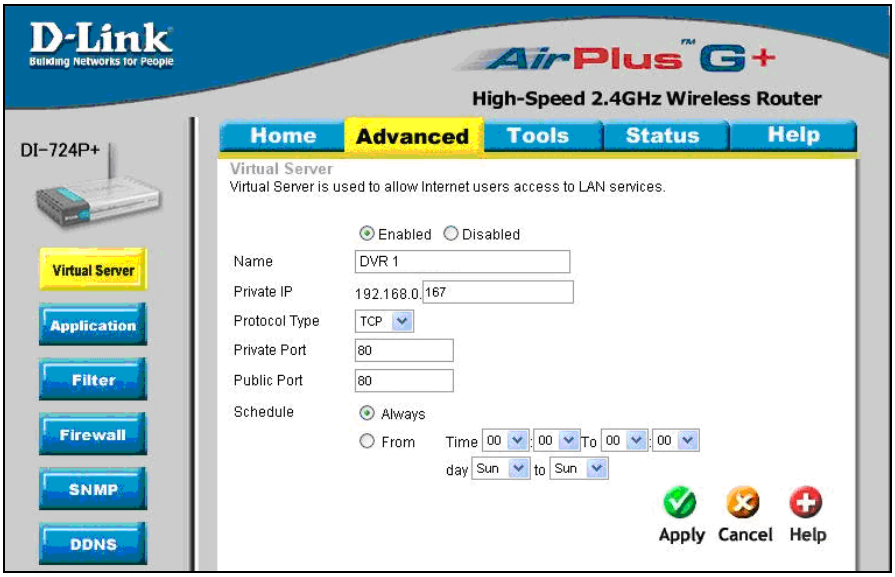
Following is an example of how the router should be set.

Router	PC	DVR 1	DVR 2
(D-Link DI-724P+) WAN IP: 218.160.54.13 LAN IP: 192.168.0.1	IP: 192.168.0.100	IP: 192.168.0.167 Trigger port: 80	IP: 192.168.0.200 Trigger port: 81

- To change the setting of the router, a PC with web browser is required.
- Connect to D-Link DI-724P+ from PC via IE. The setup screen will be shown after entering the correct username and password.


D-Link DI-724P+ Web Configuration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.0.1/
D-Link
Building Networks for People
AirPlus G+
High-Speed 2.4GHz Wireless Router
DI-724P+
Home
Advanced
Tools
Status
Help
Setup Wizard
The DI-724P+ is an Ethernet Wireless Router ideal for home networking and small business networking. The setup wizard will guide you to configure the DI-724P+ to connect to your ISP (Internet Service Provider). The DI-724P+'s easy setup will allow you to have Internet access within minutes. Please follow the setup wizard step by step to configure the DI-724P+.
Run Wizard
Wizard
Wireless
WAN
LAN
DHCP
Help

- Click the <Advanced> tab and follow the steps to set up web port forward to DVR 1.



A. Select <Enabled> to set up the service.
B. Enter the name of the setting in the Name field: DVR 1.
C. Enter Private IP: 167
D. Choose <TCP> as the Protocol Type.
E. Enter Private Port: 80.
F. Enter Public Port: 80.
G. Click <Always> for the Schedule setting.
H. Click <Apply>.

- Click <Continue> to go on when the following screen displays.

- Follow the steps to set up web port forward to DVR 2.
  A. Click <Enabled> to set up the service.
  B. Enter the name of the setting in the Name field: DVR 2.
  C. Enter Private IP: 200
  D. Choose <TCP> as the Protocol Type.
  E. Enter Private Port: 81.
  F. Enter Public Port: 81.
  G. Click <Always> for the Schedule setting.
  H. Click <Apply>.

- Now DVR 1 can be connected via http://218.160.54.13:80 and DVR 2 can be connected via http://218.160.54.13:81.

- If there are more than one DVR behind the router, repeat the steps for port mapping setting.

Appendix E: ezRecord Diagram Samples

Diagram Sample(Full-D1)

NTSC:720x480@120PPS

PAL:720x576@100PPS

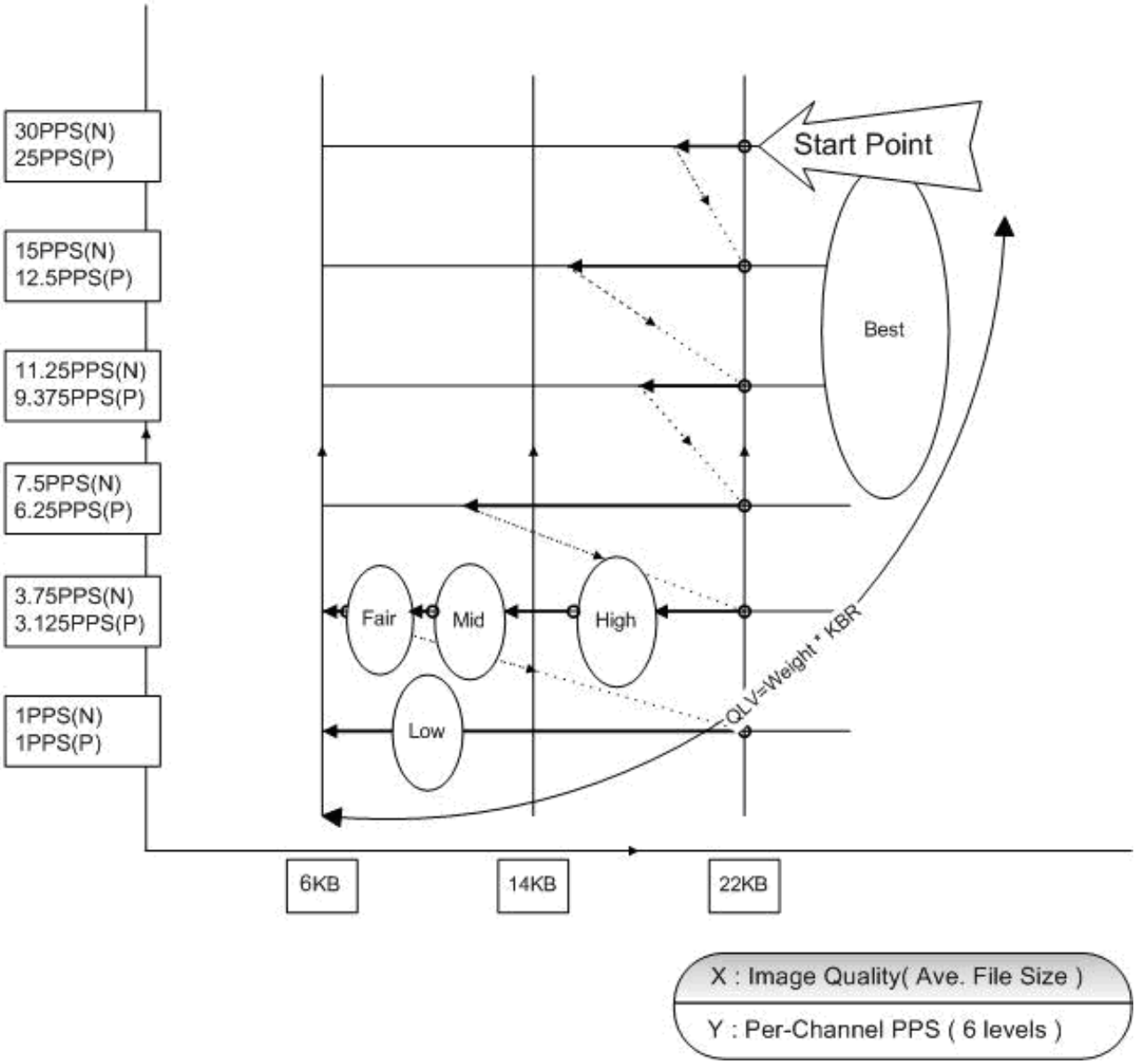


Diagram Sample(Half-D1)

NTSC:720x240@240PPS

PAL:720x288@200PPS

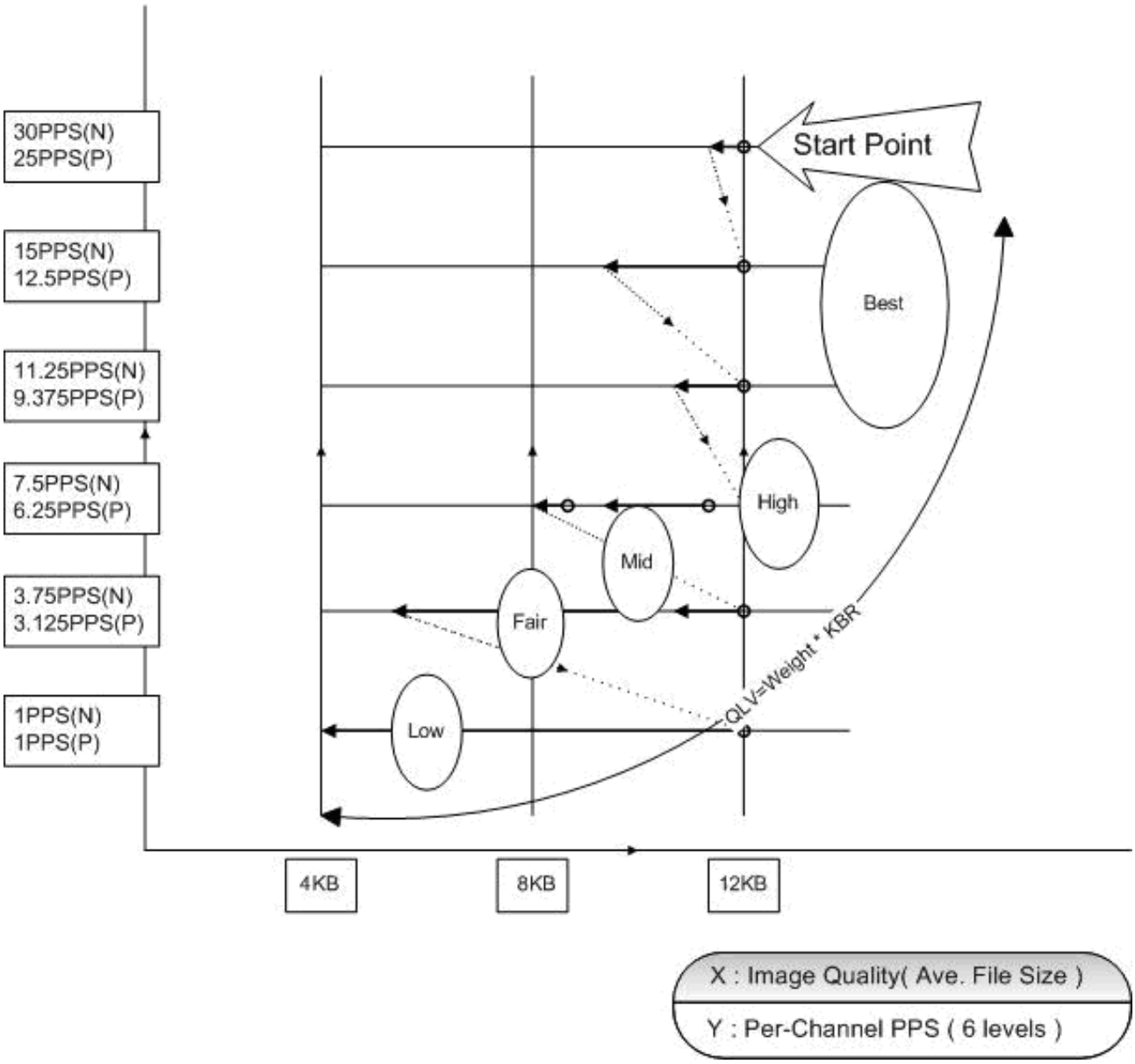
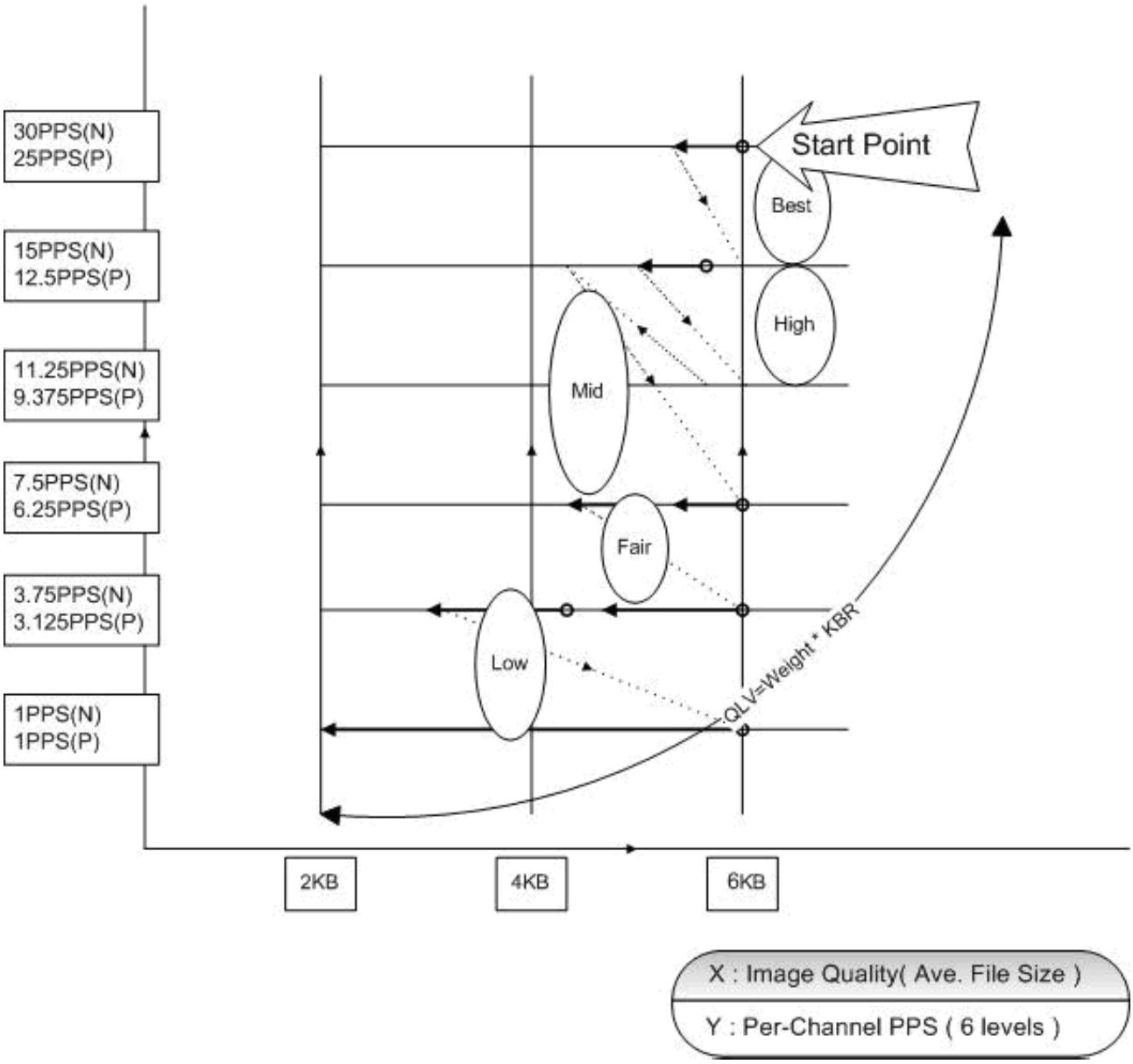


Diagram Sample(CIF)

NTSC:360x240@480PPS

PAL:360x288@400PPS



Appendix F: Record Duration

The record duration relates to recording rate, image quality, HDD capacity, and event settings. The following tables give a sample calculation of record duration according to different recording rate, image quality, and HDD capacity, excluding consideration of events, for different models with different recording mode. The recording quality refers to the normal quality setting of <Per Camera Config> in <Record Setting>, assuming all channel are set to the same quality at all times.

NOTE: Record duration times are based on actual tests and represent average file sizes. Performance may vary depending on specific installations and use. Audio recording requires 8 KB per second (or 0.7 GB per day) for data storage.

Refer to the following tables for **H.264** recording:

Record Duration (Days): Full-D1, Global [Day, Night, Weekend] (without Audio)

Recording Rate		Recording Quality Mode									
Total PPS of all Channels		Low		Fair		Mid		High		Best	
NTSC	PAL	NTSC (6 KB)	PAL (6 KB)	NTSC (10 KB)	PAL (10 KB)	NTSC (14 KB)	PAL (14 KB)	NTSC (18 KB)	PAL (18 KB)	NTSC (22 KB)	PAL (22 KB)
320 GB Internal Storage											
30	25	19.62	23.55	11.77	14.13	8.41	10.09	6.54	7.85	5.35	6.42
15	12.5	39.24	47.09	23.55	28.26	16.82	20.18	13.08	15.70	10.70	12.84
7.5	6.25	78.49	94.19	47.09	56.51	33.64	40.37	26.16	31.40	21.41	25.69
500 GB Internal Storage											
30	25	30.92	37.11	18.55	22.27	13.25	15.90	10.31	12.37	8.43	10.12
15	12.5	61.85	74.22	37.11	44.53	26.51	31.81	20.62	24.74	16.87	20.24
7.5	6.25	123.70	148.44	74.22	89.06	53.01	63.62	41.23	49.48	33.74	40.48
750 GB Internal Storage											
30	25	46.62	55.95	27.97	33.57	19.98	23.98	15.54	18.65	12.72	15.26
15	12.5	93.25	111.90	55.95	67.14	39.96	47.96	31.08	37.30	25.43	30.52
7.5	6.25	186.49	223.79	111.90	134.27	79.93	95.91	62.16	74.60	50.86	61.03
1 TB Internal Storage											
30	25	63.83	76.59	38.30	45.96	27.36	32.83	21.28	25.53	17.41	20.89
15	12.5	127.66	153.19	76.59	91.91	54.71	65.65	42.55	51.06	34.82	41.78
7.5	6.25	255.31	306.38	153.19	183.83	109.42	131.30	85.10	102.13	69.63	83.56

Record Duration (Days): Half-D1, Global [Day, Night, Weekend] (without Audio)

Recording Rate		Recording Quality Mode									
Total PPS of all Channels		Low		Fair		Mid		High		Best	
NTSC	PAL	NTSC (4 KB)	PAL (4 KB)	NTSC (6 KB)	PAL (6 KB)	NTSC (8 KB)	PAL (8 KB)	NTSC (10 KB)	PAL (10 KB)	NTSC (12 KB)	PAL (12 KB)
320 GB Internal Storage											
60	50	14.72	17.66	9.81	11.77	7.36	8.83	5.89	7.06	4.91	5.89
30	25	29.43	35.32	19.62	23.55	14.72	17.66	11.77	14.13	9.81	11.77
15	12.5	58.87	70.64	39.24	47.09	29.43	35.32	23.55	28.26	19.62	23.55
7.5	6.25	117.73	141.28	78.49	94.19	58.87	70.64	47.09	56.51	39.24	47.09
500 GB Internal Storage											
60	50	23.19	27.83	15.46	18.55	11.60	13.92	9.28	11.13	7.73	9.28
30	25	46.39	55.66	30.92	37.11	23.19	27.83	18.55	22.27	15.46	18.55
15	12.5	92.77	111.33	61.85	74.22	46.39	55.66	37.11	44.53	30.92	37.11
7.5	6.25	185.55	222.66	123.70	148.44	92.77	111.33	74.22	89.06	61.85	74.22
750 GB Internal Storage											
60	50	34.97	41.96	23.31	27.97	17.48	20.98	13.99	16.78	11.66	13.99
30	25	69.93	83.92	46.62	55.95	34.97	41.96	27.97	33.57	23.31	27.97
15	12.5	139.87	167.84	93.25	111.90	69.93	83.92	55.95	67.14	46.62	55.95
7.5	6.25	279.74	335.69	186.49	223.79	139.87	167.84	111.90	134.27	93.25	111.90
1 TB Internal Storage											
60	50	47.87	57.45	31.91	38.30	23.94	28.72	19.15	22.98	15.96	19.15
30	25	95.74	114.89	63.83	76.59	47.87	57.45	38.30	45.96	31.91	38.30
15	12.5	191.49	229.78	127.66	153.19	95.74	114.89	76.59	91.91	63.83	76.59
7.5	6.25	382.97	459.56	255.31	306.38	191.49	229.78	153.19	183.83	127.66	153.19

Record Duration (Days): CIF, Global [Day, Night, Weekend] (without Audio)

Recording Rate		Recording Quality Mode									
Total PPS of all Channels		Low		Fair		Mid		High		Best	
NTSC	PAL	NTSC (2 KB)	PAL (2 KB)	NTSC (3 KB)	PAL (3 KB)	NTSC (4 KB)	PAL (4 KB)	NTSC (5 KB)	PAL (5 KB)	NTSC (6 KB)	PAL (6 KB)
320 GB Internal Storage											
120	100	14.72	17.66	9.81	11.77	7.36	8.83	5.89	7.06	4.91	5.89
60	50	29.43	35.32	19.62	23.55	14.72	17.66	11.77	14.13	9.81	11.77
30	25	58.87	70.64	39.24	47.09	29.43	35.32	23.55	28.26	19.62	23.55
15	12.5	117.73	141.28	78.49	94.19	58.87	70.64	47.09	56.51	39.24	47.09
7.5	6.25	235.46	282.56	156.98	188.37	117.73	141.28	94.19	113.02	78.49	94.19
500 GB Internal Storage											
120	100	23.19	27.83	15.46	18.55	11.60	13.92	9.28	11.13	7.73	9.28
60	50	46.39	55.66	30.92	37.11	23.19	27.83	18.55	22.27	15.46	18.55
30	25	92.77	111.33	61.85	74.22	46.39	55.66	37.11	44.53	30.92	37.11
15	12.5	185.55	222.66	123.70	148.44	92.77	111.33	74.22	89.06	61.85	74.22
7.5	6.25	371.10	445.32	247.40	296.88	185.55	222.66	148.44	178.13	123.70	148.44
750 GB Internal Storage											
120	100	34.97	41.96	23.31	27.97	17.48	20.98	13.99	16.78	11.66	13.99
60	50	69.93	83.92	46.62	55.95	34.97	41.96	27.97	33.57	23.31	27.97
30	25	139.87	167.84	93.25	111.90	69.93	83.92	55.95	67.14	46.62	55.95
15	12.5	279.74	335.69	186.49	223.79	139.87	167.84	111.90	134.27	93.25	111.90
7.5	6.25	559.48	671.37	372.98	447.58	279.74	335.69	223.79	268.55	186.49	223.79
1 TB Internal Storage											
120	100	47.87	57.45	31.91	38.30	23.94	28.72	19.15	22.98	15.96	19.15
60	50	95.74	114.89	63.83	76.59	47.87	57.45	38.30	45.96	31.91	38.30
30	25	191.49	229.78	127.66	153.19	95.74	114.89	76.59	91.91	63.83	76.59
15	12.5	382.97	459.56	255.31	306.38	191.49	229.78	153.19	183.83	127.66	153.19
7.5	6.25	765.94	919.13	510.63	612.75	382.97	459.56	306.38	367.65	255.31	306.38

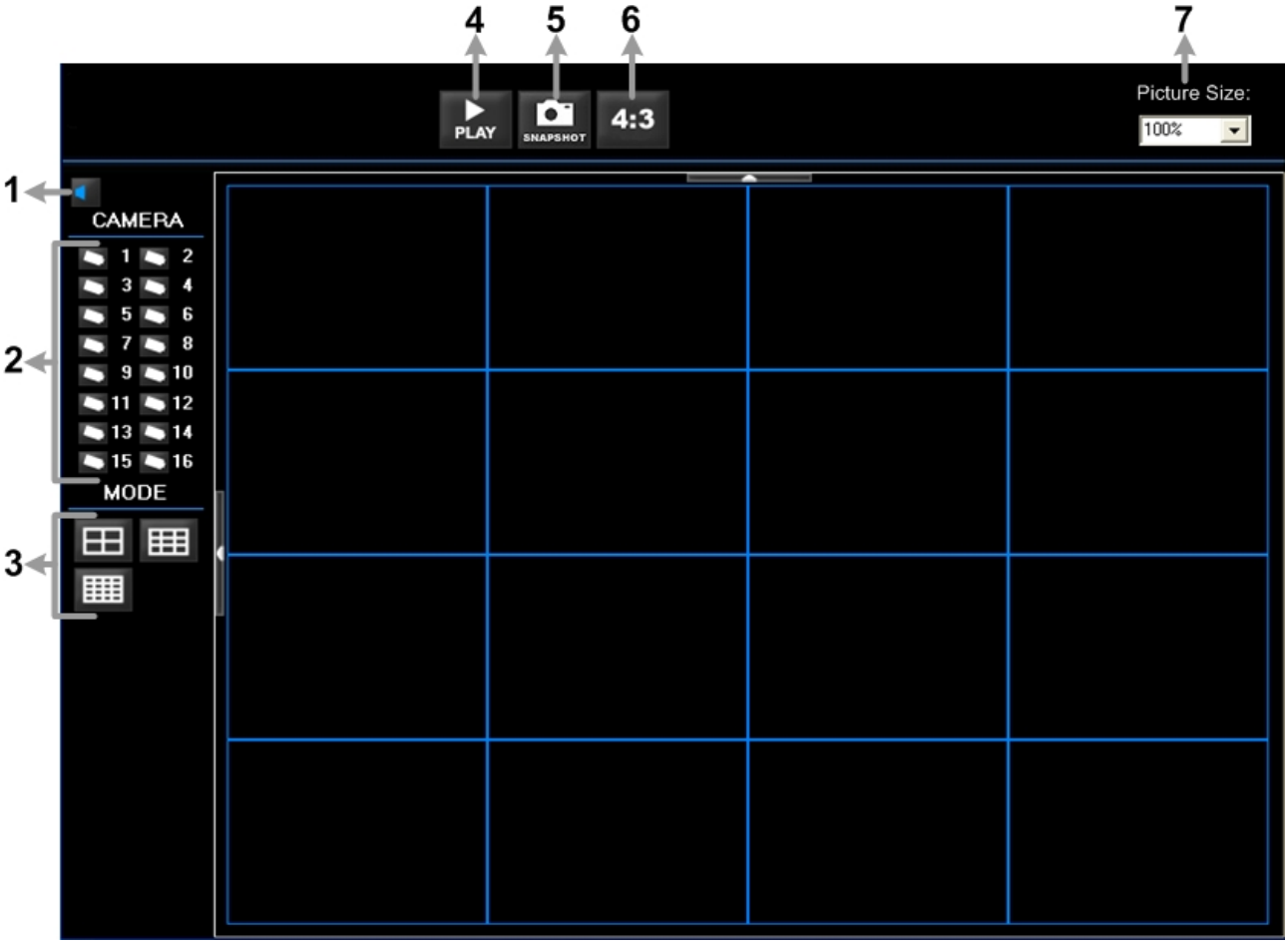
Appendix G: DVRPlayer

DVR**Player** is a software that enables users to playback the *.drv files recorded by the DVRs at a PC site.

NOTE: The DVR**Player** can ONLY accept and playback *.drv files.

First connect to the DVR via DVR**Remote**. Then download the DVR**Player**.zip file by clicking on the link provided on the DVR**Remote** main window. Extract the zip file to the same folder. Click on the DVR_Player.exe, and the main window of the DVR**Player** displays as shown below.

The main window of the DVR**Player** displays a list of cameras and mode selection buttons at the left-hand side. Using the mode selection buttons, users can select a desired viewing mode, including 4-window, 9-window and 16-window.

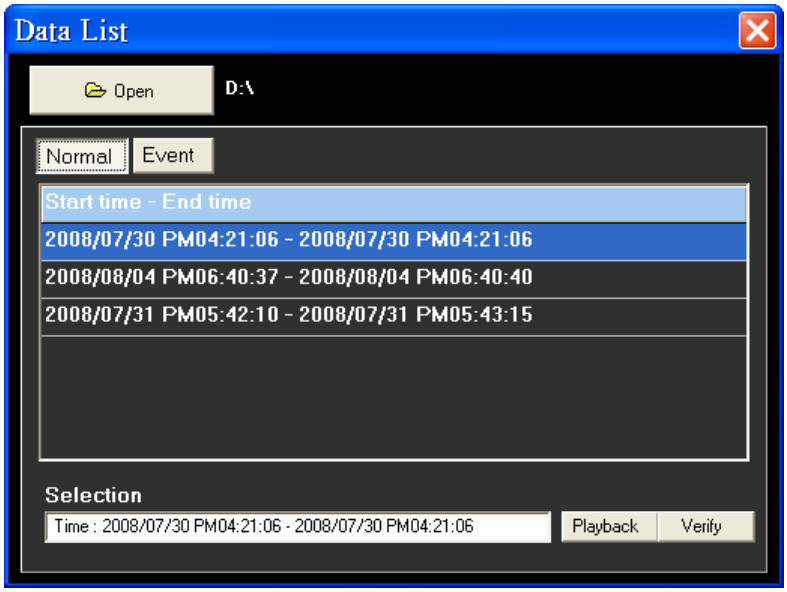


The functional items are:

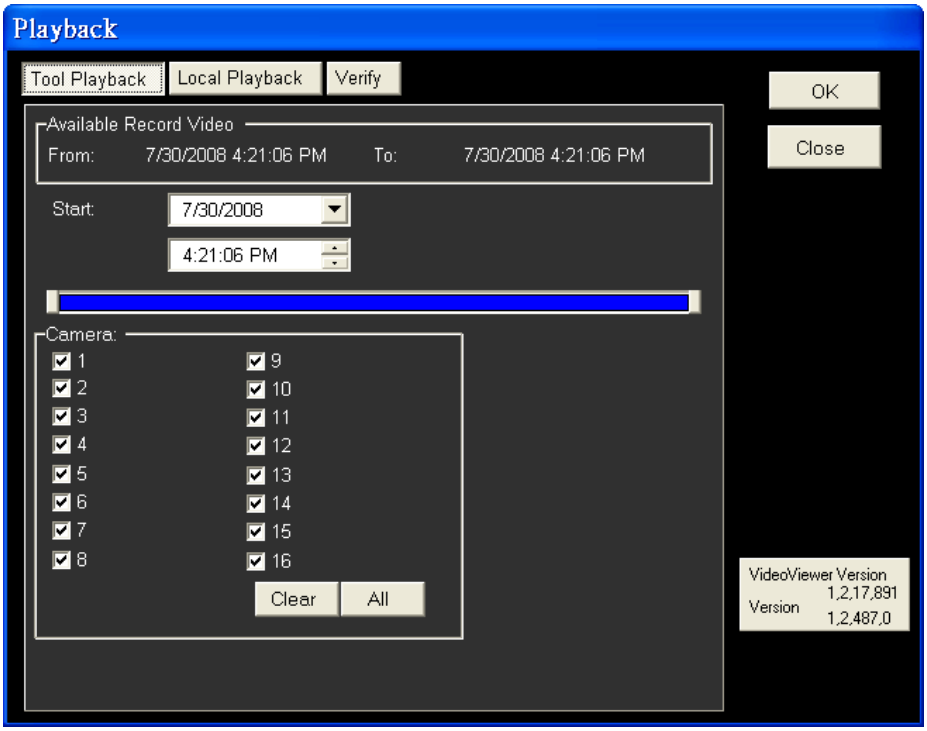
1	Audio On/Off	**5**	Capture Snapshot
2	Camera Selection	**6**	Change Viewing Aspect to 4:3
3	Mode Selection	**7**	Change Picture Size
4	Play Recorded *.drv Files		

Playback the videos on the Data List

Click <PLAY> on the toolbar at the top of the main window. The "Data List" window displays, shown as the figure below:



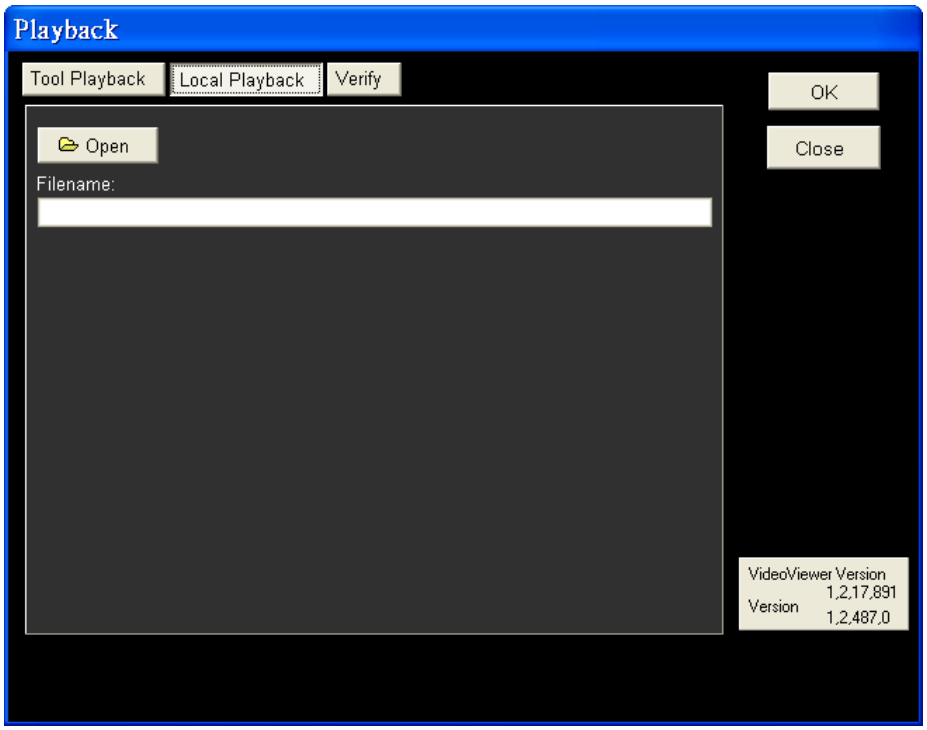
The "Data List" will show all recorded videos, "Normal" and "Event" separately, that are stored in the destination folder appeared at the top. Note that users can also click <Open> on the top to select a different folder which contains recorded videos. Select one from the list and click <Playback> at the bottom, then the "Playback" window will be shown as below:



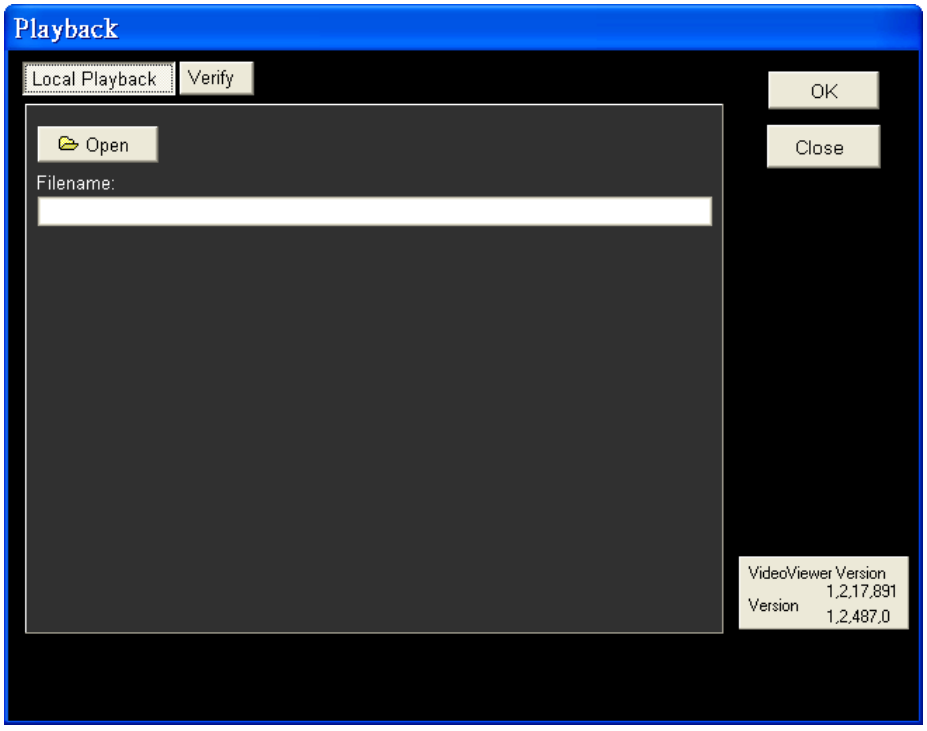
In the <Tool Playback> tab, users can set starting time and displaying cameras of the selected video. Then click <OK> on the upper right-hand corner of the window to start playback the video with selected starting time and displaying camera on the main window.

Local Playback the selected *.drv files

In the <Local Playback> tab, as shown below, users can click <Open> to select a specific *.drv file and click <OK> to playback the file on the main window.



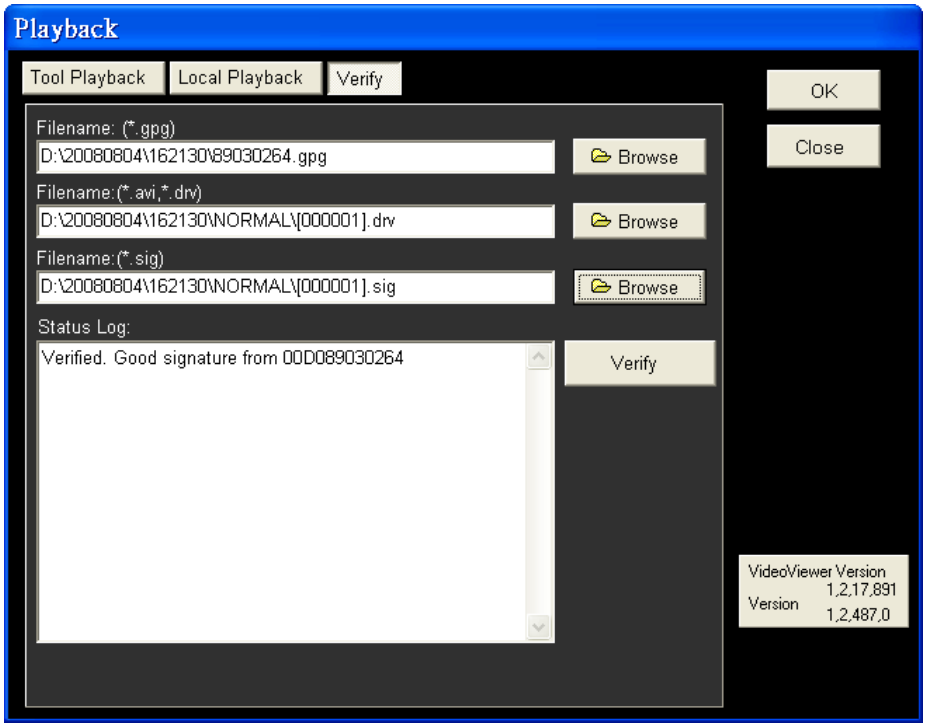
Note: If users click the close button at the top-right corner of the "Data List" window, the following "Playback" window with <Local Playback> tab and <Verify> tab only. The function of <Verify> tab will be described on the next page.



Verify digital signature of exported videos

In the <Verify> tab, as shown below, users can authenticate videos with digital signatures. Follow the steps below to complete the verification.

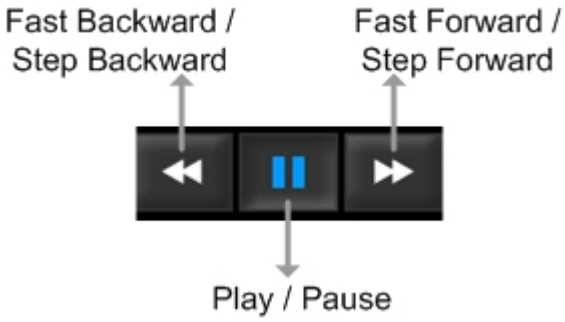
- Select any video from the Data List and click <Verify> at the bottom, then the "Playback" window will be displayed returning a GOOD or BAD signature result in the <Status Log> field. A GOOD signature indicates the exported clip has not been altered, whereas a BAD signature means the video might be changed at some point.



- Alternatively, click <Browse> to select the *.gpg, *.drv (or *.avi), *.sig files, which belong to the video to be authenticated, respectively. After all files are selected, click <Verify> button to start verifying digital signature.

Playback Controls

When the video starts to playback on the main window, the playback control buttons will be displayed on the toolbar at the top of the main window. Please refer to below picture:



Refer to the following table for description of playback control buttons used while playing back the *.drv file.

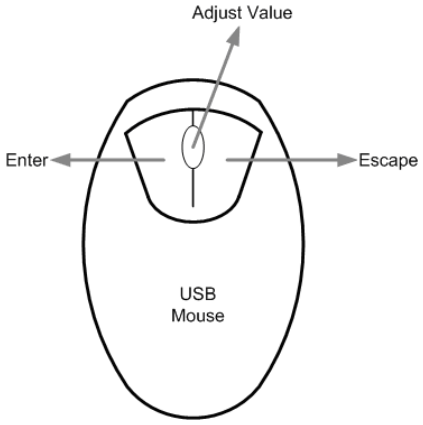
ICON	BUTTON	DESCRIPTION
	Fast Backward / Step Backward	1. Click to playback the video backward. Click repeatedly to select the desired playback speed from 1X, 2X, 4X, 8X, 16X and 32X. 2. When the playback is paused, click once to move one step backward.
	Play	Click to resume the playback. The icon is displayed when the playback operation is paused.
	Pause	Click to pause the playback. The icon is displayed while playing back the video.
	Fast Forward / Step Forward	1. Click to playback the video forward. Click repeatedly to select the desired playback speed from 1X, 2X, 4X, 8X, 16X and 32X. 2. When the playback is paused, click once to move one step forward.

Appendix H: USB Mouse Operation

Users can use an USB mouse to operate the DVR. To use the USB mouse, please read through the following descriptions.

Plug in an USB mouse to any USB port of the DVR. Move the USB mouse, and the cursor should appear. Move the cursor to the right side of the screen and a Live Panel will be displayed. The icons on the Live Panel are the same as the functional keys on the front panel of the DVR.

Clicking the left button functions the same as pressing the "ENTER" key. Clicking the right button functions the same as pressing the "ESC" key. The scroll wheel is used to change values.



For example, if users want to change dome camera ID, enter the OSD setup menu and go to the following path: <Main Menu> → <Camera Setup> → <Dome ID>.

Left click on <Dome ID> and scroll the wheel up or down, the ID number will change as the scroll wheel moves. Stop moving the scroll wheel when the preferred ID number appears, then left click on the <Dome ID> and the ID number will be changed.

Special Operations

There are two special operations provided when an USB mouse is connected. One is camera title alignment and the other is motion detection area setup.

Camera Title Alignment

Users are allowed to change the display position of camera titles of all channels. To change the camera title position of any single channel, left click on the camera title and drag to any preferred position. If users want to set all of the camera titles to the same position that is set for a specific channel, right click on the specific camera title and select <Align Here> from the pull-down menu. Users can also change the monitor type as BNC or VGA. The other options allow users to quickly set all camera titles to the preset positions at once.

Motion Detection Area Setup

When users are setting the motion detection area, an USB mouse can help to speedily complete the setup. Enter the OSD setup menu and go to the following path: <Main Menu> → <Event Setup> → <Per Channel Config> → <Detection Config> → <Detected Area Setup>. The screen is split into 16x12 grids, where the grids can be selected or deselected as motion detection area.

Left click once on any grid to select or deselect the specific grid. Moreover, left click and drag to choose multiple grids, then a pull-down menu will be displayed when the mouse button is released. Choose <BLOCK SELECT> to set the grids as motion detection area, or choose <BLOCK DESELECT> to deactivate the grids. Otherwise, choose <CANCEL> to do nothing.

Right clicking the USB mouse will display a different pull-down menu, which includes: <Select All>, <Deselect All>, and <Confirm>. Choose <Select All> to set all grids as motion detection area, or choose <Deselect All> deactivate all grids. When the setup is completed, choose <Confirm> to save the setting and return to the previous page.

NOTE: This special USB mouse operation is also available to the privacy mask setup and smart search area setup.

Appendix I: HDD Copy Tool (EXT2IFS)

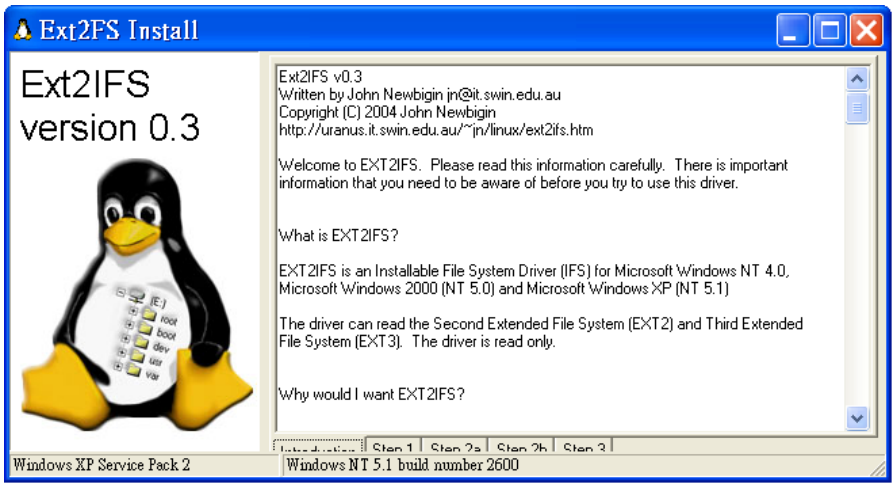
The data system of the DVR's HDD is totally different from Windows® based PC. So if users just simply plug the HDD onto the PC, the PC will not recognize its existence. Hence, to access data from the DVR's HDD, users will need a special HDD Copy Tool driver called EXT2IFS. This appendix section will introduce how to download, install, and setup EXT2IFS and the DVR's HDD.

Installation of the DVR's HDD

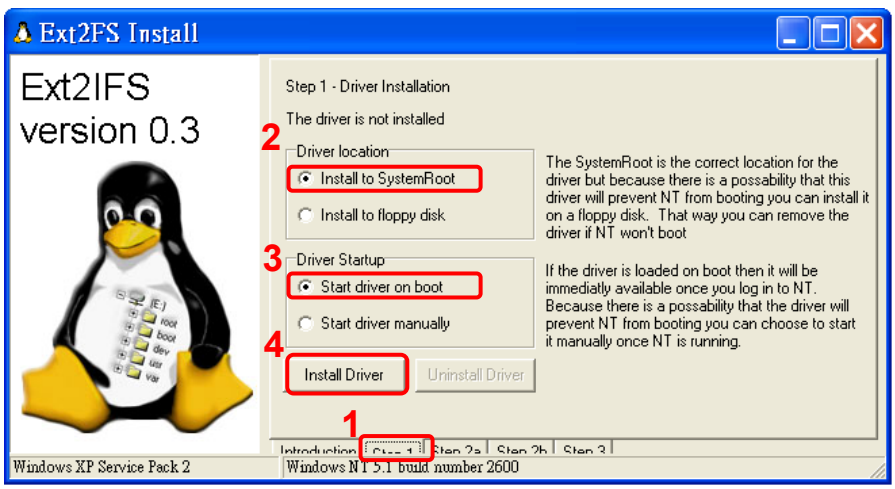
EXT2IFS can be found on the website: http://uranus.it.swin.edu.au/~jn/linux/ext2ifs.htm. A detailed description about the driver can also be found. Plug in the DVR's HDD to the PC, then follow the steps below.

Step 1. Download EXT2IFS to the PC from the website listed above.

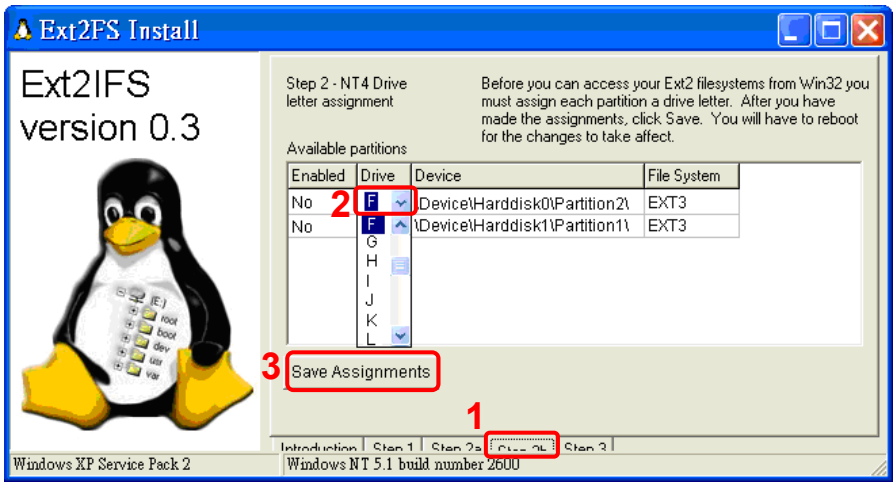
Step 2. Extract the EXT2IFS driver that was just downloaded. Open the extracted folder and double click on "service.exe", and the window below will be displayed.


Ext2FS Install
Ext2IFS
version 0.3
Ext2IFS v0.3
Written by John Newbigin jn@it.swin.edu.au
Copyright (C) 2004 John Newbigin
http://uranus.it.swin.edu.au/~jn/linux/ext2ifs.htm
Welcome to EXT2IFS. Please read this information carefully. There is important information that you need to be aware of before you try to use this driver.
What is EXT2IFS?
EXT2IFS is an Installable File System Driver (IFS) for Microsoft Windows NT 4.0, Microsoft Windows 2000 (NT 5.0) and Microsoft Windows XP (NT 5.1)
The driver can read the Second Extended File System (EXT2) and Third Extended File System (EXT3). The driver is read only.
Why would I want EXT2IFS?
Windows XP Service Pack 2
Windows NT 5.1 build number 2600

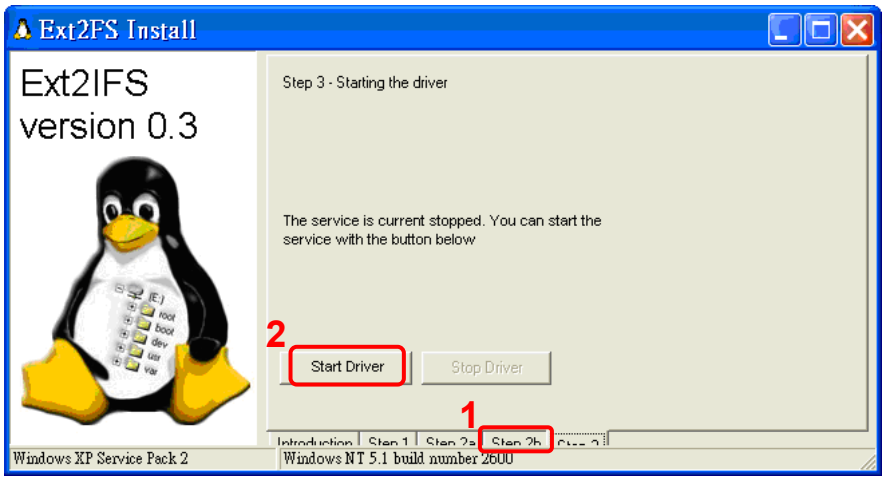
Step 3. Click <Step 1>, then choose <Install to SystemRoot> and <Start driver on boot> options, as shown below. Then, click <Install Driver> button.


Ext2FS Install
Ext2IFS
version 0.3
Step 1 - Driver Installation
The driver is not installed
2
Driver location
Install to SystemRoot
Install to floppy disk
The SystemRoot is the correct location for the driver but because there is a possability that this driver will prevent NT from booting you can install it on a floppy disk. That way you can remove the driver if NT won't boot
3
Driver Startup
Start driver on boot
Start driver manually
If the driver is loaded on boot then it will be immediatly available once you log in to NT. Because there is a possability that the driver will prevent NT from booting you can choose to start it manually once NT is running.
4
Install Driver
Uninstall Driver
1
Windows XP Service Pack 2
Windows NT 5.1 build number 2600

Step 4. Click <Step2b>. Assign each partition to a drive letter. After the assignment of HDDs are made, click <Save Assignments> button.



Step 5. Click <Step3>. Then, click <Start Driver> button. Now, reboot the PC for the changes to take effect. The HDD installation is now completed.

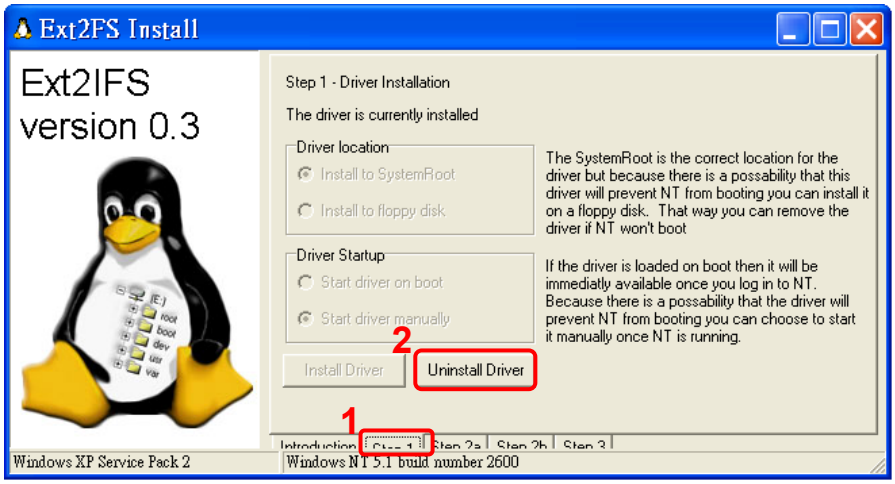


After the DVR's HDD is correctly installed, videos in the DVR's HDD can be played back by using the DVR**Player**. Refer to **Appendix C: DVRPlayer** for detail instruction about the operation of the DVR**Player**.

Removal of the DVR's HDD

To remove the HDD from the PC, follow the instruction below.

Re-open the EXT2IFS, and go to <Step 1> menu. Click "Uninstall Driver", and a message will be shown as: "The service is currently started. You will have to reboot before the service is completely uninstalled." Click on "OK" and turn off the PC. Remove the HDD from the PC, and reboot the PC. The removal of HDD is now completed.


Ext2FS Install
Ext2IFS
version 0.3
Step 1 - Driver Installation
The driver is currently installed
Driver location
Install to SystemRoot
Install to floppy disk
The SystemRoot is the correct location for the driver but because there is a possability that this driver will prevent NT from booting you can install it on a floppy disk. That way you can remove the driver if NT won't boot
Driver Startup
Start driver on boot
Start driver manually
If the driver is loaded on boot then it will be immediatly available once you log in to NT. Because there is a possability that the driver will prevent NT from booting you can choose to start it manually once NT is running.
Install Driver
Uninstall Driver
1
2
Windows XP Service Pack 2
Windows NT 5.1 build number 2600